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# USSR Report

NATIONAL ECONOMY

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USSR REPORT  
NATIONAL ECONOMY

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## ECONOMIC POLICY, ORGANIZATION, MANAGEMENT

### REVISED, CONSOLIDATED LEGAL CODE ON ENTERPRISE RIGHTS SOUGHT

Moscow EKONOMICHESKAYA GAZETA in Russian No 37, Sep 86 p 6

[Article by V. Mamutov, corresponding member of the UkSSR Academy of Sciences and deputy director of the Industrial Economics Institute of the UkSSR Academy of Sciences, Donetsk: "Guarantees of Enterprise Rights"]

[Text] An analysis of normative acts and instructions on expansion of enterprise rights and of the proposals being made at the present time allows the view that the matter does not lie so much in granting rights in legislative acts as in guaranteeing the actual exercise of those rights.

Increasing the responsibility and independence of enterprises is one of the directions for revamping the economic mechanism. The need to be concerned about an authentic broadening of the rights of work collectives and for that purpose to complete in the shortest possible time the drafting of the Law on the Socialist Enterprise (Production Association) was pointed up once again at the June Plenum of the CPSU Central Committee. The law would be expected to guarantee performance of the task which has been set by translating the fundamental principle contained in it into the specific language of legal norms and straightforward interrelated rules of socialist economic activity, and to make it possible for words to become deeds.

#### Toward Authentic Cost Accounting (Khozraschet)

In the process of completing the drafting of the law it is indispensable to take into account the negative cases we have had in which legislative measures aimed at broadening the rights and strengthening the motivation of enterprises to intensify production have not been altogether realized. This has been occurring either in connection with nonobservance of the requirements of the systems approach to legal regulation of the economy or because of the declarative rather than normative character of the legislative acts adopted. If enterprises were able to make actual use of all the rights they have been granted, then possibly this issue would not be so acute at the present time. When, say, an enterprise is granted the right to independently dispose of the production development fund, but the procedure for planning, material and technical supply, and construction is such that the actual possibility of using that fund depends entirely on the ministry, then the independence of enterprises turns out to be declarative to a considerable degree. This kind of

inertia of the system of economic management that has come about suppresses the partial measures that have been adopted to develop enterprise initiative.

One of the causes of this situation is the absence of proper legal safeguards. It is not enough to proclaim the independence, rights, and responsibility of enterprises; we need an entire system of economic relations which focus upon the enterprise and its work collective and which are regulated in such a way that independence in attaining the highest end results and authentic cost accounting become reality.

If authentic cost accounting of enterprises is to be ensured, mutuality of obligations and responsibilities first has to be achieved in the economic relations of enterprises with higher-level authorities, with ministries. The norms which broaden the rights of enterprises must be backed up with corresponding changes in the norms regulating the jurisdiction of the higher-level economic agencies, the banks, supply agencies, and also the norms regulating planning, construction, transportation, financing, credit financing, and other spheres of economic activity. Thus, /to expand independence in a real sense requires something more than merely granting enterprises new rights--many norms contained in economic legislation have to be updated and moreover linked to one another/ [in boldface].

#### From the Positions of the Systems Approach

But is it not impossible to solve all these problems in a single law concerning the enterprise? The available experience provides no grounds for an affirmative answer to that question. Along with the Law on the Enterprise there will be other normative acts in effect, just as they are now alongside the Statute on the Enterprise. There is a need, then, to perform other tasks as well in improving economic legislation which have been set by the 27th CPSU Congress. And they must be performed simultaneously, since otherwise we will again be violating the requirements of the systems approach.

To be specific, it is altogether necessary in the stage of completing the drafting of the Law on the Enterprise to perform the complicated problem of bringing it into organic conformity with the present Law on Work Collectives. There is a need as well to see that the new law is not "all diapered up" with numerous normative acts, especially those adopted by different departments, which is what happened with the Statute on the Socialist State Production Enterprise adopted in 1965.

How can the hampering of enterprises with excessive regulation be prevented and at the same time provide straightforward regulation of the entire system of economic relations in which the enterprise stands as the focus?

/Experience unambiguously indicates that adoption of a code, in this case a code on economic activity, is the best legal form for guaranteeing the systems approach to legal regulation./ [in boldface] But up to this day there has been no such systemic regulation. The draft plan for drafting legislative bills in the twelfth 5-year planning period which has been prepared by the USSR Ministry of Justice makes no provision for drafting a code.

The absence of codification has the result that economic legislation is constantly gushing forth, which, of course, is not conducive to a strengthening of the legal system and legality. For example, capital construction is regulated by 2,000 normative acts which could not be brought together in orderly fashion even in 10 massive volumes. These acts were moreover adopted at differing levels: in addition to the highest bodies of leadership, they were adopted by ministries and departments in more than 100 different combinations (Gosplan and Gosstroy, Gosstroy and Stroybank, Minfin and Gosbank, and so on). In all, there are approximately 40,000 legal acts pertaining to economic activity that are now in effect. Who is able to be thoroughly familiar with all these norms and to adhere to them? What kind of apparatus would it take to oversee their enforcement? The important norms are swallowed up in this ocean of eloquence.

Immensity, vagueness, and ineffectiveness are not the only adverse consequences of this practice in the adoption of legal standards. The situation is compounded by the inconsistency in regulation from one sphere of economic activity to another, since they are regulated by different normative acts issued by different bodies at different times.

A certain effort was made to systematize legislation in creating the Collection of USSR Laws. But there is no summary law that would make it possible to link together the various subbranches of economic legislation, a law that would reinforce the basic principles of economic activity, would guarantee their consistency, and would serve as a stable basis for all of current legislation.

The question of the need to prepare this is closely bound up with the questions of adjusting the economic mechanism as a whole. A USSR Economic Code could well be the best form for setting forth the new rules of economic activity, for guaranteeing stability and consistency in the relevant normative material. A code adopted by the supreme body of the government is a well-known juridical form of a law that has been verified by practice and guarantees uniformity of legislation and puts it in a compact and terse form in which it can be examined.

The effort to prepare the code might be carried out alongside the working out of the new normative acts aimed at revamping the economic mechanism.

#### An Instrument for Strengthening Order

The lack of an economic code is one of the substantial reasons for violations of socialist legality and state discipline in the economy, since there is no criterion elevated to a law as to what is correct or incorrect, what is permitted or prohibited, in many questions concerning management of the economy. This has the result that ministries and departments both in their everyday economic activity and also in the issuing of normative documents make decisions without adhering to a uniform criterion, and one gets as a result petty regulation and an excess of normative documents. This practice results not only in lapses in fulfillment of plans and contract obligations, but quite often it also undermines the basic principles of economic activity because

there is no single law (like, say, the Labor Code or Criminal Code) which might serve as the standard of actions in cases of similar kind.

An economic code is also needed to combat violations, to eliminate the causes and conditions of economic crimes. The point is that instability, awkwardness, and the technical juridical imperfection of the documents are not conducive to compulsory and efficient enforcement of economic legislation. One of the necessary conditions /of observance of norms is a knowledge of them. If economic legislation is to be observed to the maximum possible degree, it must be open to scrutiny, and it must command respect by its very form as a law in being simple, straightforward, and comprehensible. These requirements can be met only in a codified act./ [in boldface]

The sensible ideas are drowned in wordy enactments, such acts do not win acceptance, monitoring of their observance is difficult, they are carried out to a very small degree, and sometimes they are not carried out at all. When you encounter such an enactment, quite often you get the impression that someone was deliberately trying to dissolve the ideas in wordiness in order to paralyze effective settlement of the issue. Such a danger, fed by the aspiration of departments to demonstrate their vigor in verbal form, is not excluded even today.

Is There Going To Be an Economic Code or Not?

The advisability of the speediest preparation and issuance of an economic code has been argued repeatedly both in the specialized juridical literature and also in the general press. The proposal to prepare an economic code of the USSR has also been contained in the recommendations of a number of scientific conferences, specifically in the recommendations of the All-Union Scientific Coordinating Conference of Legal Scholars and Personnel of Law Enforcement Authorities which was held in Moscow in November 1984. But for some reason the USSR Ministry of Justice still does not deem this issue worthy of attention.

On the initiative of the social sciences section of the USSR Academy of Sciences a draft of an economic code has been prepared and has received approval in principle from many ministries, departments, practitioners, and scientists. This draft has been approved at joint conferences of learned councils of the Economics Institute of the USSR Academy of Sciences and the Institute of Law and Government of the USSR Academy of Sciences, and of the bureaus of the departments of economics, philosophy, and law of the USSR Academy of Sciences. Preparation of the draft has refuted the opinion of certain scientists and practitioners to the effect that it was supposedly technically impossible to write a code because of the extensiveness of economic legislation, and it has proven that an economic code can facilitate the systems approach to legal regulation of economic activity.

The question arises: How are we still to explain that preparation of an economic code has not been included in the draft plan of legislative projects for the 12th Five-year Plan? Apparently it is a question of the learned experts of the All-Union Institute of Soviet Legislation of the USSR Ministry of Justice, which at one time displayed a negative attitude toward the idea of codifying economic legislation when they did not have sufficient basis for that



position, have been persistently holding to this unconstructive view. Proposals which by no means can replace the code and which the authors have not set forth in any sort of drafts have for more than a century been set up in opposition to the writing of a code, and their sole purpose appears to be to "beat down" the proposal to write the code without losing face.

The absence of an economic code also probably suits those personnel of the headquarters of central management authorities which are afraid that adoption of such a law could restrict the sphere of their intervention and place them in the position of those who are managed and not exclusively those who do the managing, as is the case today.

One can, of course, doubt that the idea of writing the code is worth "crossing swords" with important institutions. Of course, codification is not a panacea against all evils. But still a code is a system, and a system, as is well known, possesses a new attribute or property that is not possessed by any of its parts separately, and it is that new property that yields the additional benefit. Therefore, /in codifying legislation, we are not merely "bringing it into conformity," summarizing it, but we are qualitatively improving it, thereby promoting a radical reform of economic management/ [in boldface].

In the light of the opposition that exists to codifying economic legislation, we might also pose the question differently: Exactly what do we have to lose by ordering Gosplan, Gossnab, Gosarbitrazh, and the Academy of Sciences to prepare the draft of an economic code? After all, this effort, when there now already exist several versions of the draft, does not require any sort of sizable outlays. The most "terrible" thing which could happen is that the new draft would be set aside in some stage of its examination and a different act would be adopted in its place. But in this case the work on it would not prove to be useless, since it would undoubtedly contribute to the systematization, better consistency, and improvement of legislation. This is real and purposive work, and it is self-evident that it is more effective than the many years of doing nothing to codify economic legislation.

In solving this problem, as we see it, the proper thing would be to start with the question of whether there will be an economic code or not; this is the essential part of the question of whether or not we will have the requisite order in the economy, an order that guarantees motivation, independence, and initiative of work collectives.

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## PLANNING, PLAN IMPLEMENTATION

### UKRAINIAN SSR 12TH FYP HIGHLIGHTED

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian No 9, Sep 86 pp 3-8

[Editorial: "The Key Issues of the 12th Five-Year Plan"]

[Text] The 12th Five-Year Plan has a special role to play in carrying out the party's economic strategy, in the intensification of social production. The rates of our country's socioeconomic development and the level of prosperity of the Soviet people depend to a decisive degree on the foundation laid over the next 5 years for carrying out the radical transformations in the economy and for acceleration of scientific-technical progress.

The key problems and tasks of the State Plan for Economic and Social Development of the USSR Over the Period 1986-1990 were taken up in the June (1986) Plenum of the CPSU Central Committee. The report which M.S. Gorbachev, general secretary of the Central Committee, delivered at the plenum covered every aspect of the problems of implementing the general line of the 27th CPSU Congress toward acceleration of the country's socioeconomic development and the strengthening of peace, summed up the results of efforts since the congress and drew the lessons from it, and defined the party's next tasks.

The plenum of the Ukrainian CP Central Committee held in July discussed the tasks of the republic's party organizations in carrying out the decisions of the June (1986) Plenum of the CPSU Central Committee and the State Plan for Economic and Social Development of U'sSR Over the Period 1986-1990. V.V. Shcherbitskiy, member of the Politburo of the CPSU Central Committee and first secretary of the Ukrainian CP Central Committee, delivered the report at the plenum. The report and the speeches of the participants in the plenum said that the republic's party members and workers unanimously approved the decisions and documents of the June Plenum of the CPSU Central Committee and the Fifth Session of the USSR Supreme Soviet. The party's appeal for organizing nationwide socialist competition for successful fulfillment of the targets of the 12th Five-Year Plan is meeting with a patriotic response in work collectives.

The plan for the period 1986-1990 is being called upon to impart to the Soviet economy the kind of acceleration that will not only overcome the adverse trends that have taken shape in the economy in the seventies and early eighties, but also guarantee a real turnabout in all sectors and spheres of activity, a decisive transition to the strategy of intensive growth, and lay a sound

foundation for the country's forward movement in the future. The questions of intensification of social production and of mobilizing its deep unutilized potential in order to perform the principal task of the 5-year period, the essence of which lies in increasing the rates and efficiency of economic development and of achieving a further rise in the prosperity of the Soviet people on that basis, have played a decisive role in shaping that plan. An important feature of the plan is that it calls for attaining the upper level of the targets contained in the Basic Directions for Economic and Social Development, and surpassing them to some extent in industry and with respect to certain very important social indicators.

In the period 1986-1990 the country's national income used for consumption and accumulation is to increase 22.1 percent. The growth of the national income in absolute terms will be 124 billion rubles (as against 79 billion in the 11th Five-Year Plan). The volume of industrial output will grow 25 percent, or by 200 billion rubles (as against 133 billion), and the average annual volume of the gross output of agriculture will increase 14.4 percent, or by 29 billion rubles (as against 10 billion). The absolute increments adopted in the plan for the most important economic indicators are 1.5-fold higher than in the period 1981-1985.

The gross social product in UkSSR will grow 17.3 percent and reach 292 billion rubles by the end of the 5-year period; the national income will grow 19.8 percent and reach 121.8 billion rubles in 1990. At the same time the absolute growth of the gross social product will rise to 43 billion rubles (as against 38.5 billion in the last 5-year planning period). The plan for the economic and social development of UkSSR also calls for higher targets than originally set in the Basic Directions.... By virtue of more effective utilization of the existing productive potential, by accelerating scientific-technical progress, and by intensifying resource conservation, capabilities have been mobilized in the republic for an additional growth of the gross social product by 7.9 billion rubles and the national income by 6 billion rubles (or 2.5 and 4.5 percent, respectively). At the same time the volume of industrial production will grow 21 percent.

As noted at the June (1986) Plenum of the CPSU Central Committee in the 12th Five-Year Plan lessons have been drawn from the mistakes of the past, when the rise of the rates of economic development was shifted to the last years of the 5-year planning period. Now a uniform increase of the growth rates of all basic indicators from year to year of the 5-year planning period has been envisaged. This optimum structuring of the plan makes it more realistic and reliable and also affords the possibility of achieving a national income that is 30 billion rubles greater over the 5 years than if the plan had been structured on the old principles.

Achievement of high rates of economic development in the 12th Five-Year Plan is based on new sources of economic growth--reconstruction, quality, efficiency, and major measures to accelerate scientific-technical progress.

Paramount importance is given in the plan to rapid renewal of the productive plant by applying revolutionary technologies and flexible production systems,



which make it possible for enterprises to reorganize rapidly to manufacture a new product and which afford the greatest economic and social benefit. The manufacturing of robots, machining centers, rotary assembly lines, flexible automated systems, and microprocessor equipment will increase between twofold and tenfold in the current 5-year planning period.

One of the decisive directions of the economy's advance to forward scientific-technical positions is the application of electronics. The plan for the twelfth 5-year planning period calls for a 2.4-fold increase in the production of computers. This will make it possible to increase the relative share of machines and equipment with electronic control (including microprocessors) from 5 percent of the total output of machinebuilding in 1985 to 27-32 percent in 1990--and with respect to certain of the most important of them up to 70 percent.

On the whole for the 5 years the application of progressive base technologies will increase 1.5-2-fold, and the level of automation of production will double. The use of economical new materials will expand substantially. Scientific-technical progress in industry will account for two-thirds of the rise of labor productivity. At the same time the production cost of industrial products will drop by 28.6 billion rubles (as against 16.3 billion in the 11th Five-Year Plan).

Performing the tasks of intensification of social production is being guaranteed to a decisive degree by vigorous use of the mighty potential of science. Expenditures for science in 1990 (not including capital outlays) will be increased to 33 billion rubles (as against 24.8 billion in 1985). At the same time the rates of their growth will exceed by a factor of 1.5 the growth rates of the national income. In UkSSR the plan calls for increasing by a factor of at least 1.5 the return from application of scientific developments, which is to increase to 4.5-5 billion rubles per year. The plan calls for mechanization and automation to relieve 1.5 million persons of manual work (or 2.1-fold more than in the 11th Five-Year Plan). In addition, the benefit from carrying out comprehensive target programs at the republic level is to double.

It should be noted at the same time that the process of strengthening the interrelationship between science and production is in many respects not meeting present-day requirements; the principles set forth at the June (1985) conference held in the headquarters of the CPSU Central Committee on the problems of accelerating scientific-technical progress concerning the reorganization of science at the sector and branch level are being implemented slowly. The activity of many scientific research institutions is still yielding small benefits. For instance, a number of large textile industries have been built according to designs of the Kiev Design Institute of UkSSR Minlegprom. But these designs were oriented toward outdated equipment; and other flagrant miscalculations were committed in them. As shown by expert evaluation, there are also serious oversights in technical designs in machine tool building, metallurgy, and other sectors. A kind of inferiority complex has taken shape in many research institutes and design offices. This state of affairs is intolerable from now on. "Once again I would like to say to those who have been attempting to pull us backward," M.S. Gorbachev emphasized in his report at

the June (1986) Plenum of the CPSU Central Committee: "we cannot and will not give in to attempts of this kind and must put a stop to every feeble attempt to reproduce the approaches and mistakes of the past, above all in the sphere of scientific-technical progress."

The plan for the twelfth 5-year planning period has embodied the fundamental line of the 27th CPSU Congress toward technical reconstruction of the sectors of the economy, which has been reliably backed up by the entire body of structural and investment policy. The share of outlays for retooling existing production in capital investments in production is increasing from 38.5 percent in 1985 to 50.5 percent in 1990. On that basis the adverse trend that took shape in the seventies toward rising physical aging and obsolescence of fixed capital will be overcome in the twelfth 5-year planning period. By the end of 1985 the wear of productive capital in the republic's industry will exceed 43 percent. That is why retirement of outdated assets will double in the period 1986-1990 (as compared to the previous 5-year planning period). Measures of an organizational and economic nature aimed at better utilization of existing capital also have very great importance.

The Ukrainian CP Central Committee has approved the effort of the Kharkov Oblast party organization to intensify production on the basis of conversion of industry to a two- and three-shift operating schedule. This very year the shift coefficient of the operation of equipment will rise from 1.47 to 1.75-1.8. Sections in which highly productive equipment is used, above all machine tools with numeric programmed control and machining centers, are being staffed for round-the-clock operation. This will make work space available that will be used to increase existing capacities, work space whose construction would have cost more than 60 million rubles of capital investments. All of this will make it possible to substantially increase the output of automation and mechanization equipment, to reduce the relative share of workers employed at manual labor, and to increase (by 10 percent) the share of intensive factors in the growth of the volume of production.

The measures envisaged by the plan for acceleration of scientific-technical progress are creating the prerequisites for accomplishing a radical turnabout in the intensification of social production and in increasing its efficiency. In the 12th Five-Year Plan the process of intensification will for the first time in the history of the country's economy embrace all factors and resources of production--labor, fuel and raw materials, fixed capital, and capital investments. The productivity of labor in the USSR national economy will rise 23 percent, and the efficiency of capital investments 16 percent. Moreover, energy intensiveness of the national economy will decrease 8.5 percent, and metals intensiveness 14 percent. The rate of reduction of the output-capital ratio will be cut to less than half, and in machinebuilding and light industry this adverse trend of many years' standing will be altogether overcome.

Acceleration of the country's socioeconomic development in the twelfth 5-year is based on the sound foundation of improving proportions in the national economy and strengthening the economy's balance. Shifting the center of gravity from increasing the extraction of raw materials and fuel to their all-out conservation and to pushing the development of the manufacturing branches

(machinebuilding above all), which makes it possible to apply resource-saving technologies on a broad scale, has become a priority direction in shaping the proportions of the plan. During the 5 years the relative share of the machinebuilding complex in the structure of heavy industry will grow from 43 to 48 percent and that of the fuel-energy complex and the building materials industry will drop from 18 to 16 percent and from 39 to 36 percent, respectively.

In UkSSR the volume of output of machinebuilding and metal manufacturing will grow 36.5 percent, which exceeds by a factor of 1.7 the growth rate of industry as a whole. At the same time the rate of product renewal is being raised 3-4-fold. Instrumentmaking, machine tool building, and heavy and power machinebuilding will be developing at the highest pace. Reconstruction of the underground coal mines of the Donbass will continue. At the same time radical measures will be taken for resource conservation. In the republic's economy conservation is to account for 75-80 percent of the planned growth of consumption of the most important resources, and the relative share of secondary raw materials and materials in the total volume of resource use is to be raised to 14 percent. The capacities of the coke-chemical industry are to be substantially renewed to that end, and four outdated blast furnaces and 11 rolling mills are to be withdrawn from service. Progressive converter and electro-smelting production operations, which guarantee predominant growth of the output of economical types of metal products, are to experience faster than average development: in the current 5-year period the production of low-alloy steel will increase 1.3-fold, and the output of steel strengthened with heat treatment will increase 1.7-fold.

Effective development of the Soviet economy's industrial base requires resolute improvement of product quality and widespread dissemination of the know-how of advanced enterprises manufacturing products at the level of the best world achievements. They include the work collectives of these production associations: the Kiev Machine Tool Construction Association, the Sumy Machinebuilding PO imeni M.V. Frunze, "Zaporozhtransformator," the Priкарпатський Furniture Combine, the Voroshilovgrad Knitwear Factory, and many others. At the same time in many sectors, especially in machinebuilding, the qualitative aspect of production is disturbing. It is intolerable that only about 30 percent of the products of machinebuilding produced in the country on a series basis meet the world level. In certain branches of machinebuilding this proportion is still lower. The task that has now been set consists of attaining the world level at the end of the 5-year planning period for 80-95 percent of the principal types of machinebuilding products.

An exceedingly important socioeconomic task of the 12th Five-Year Plan is to guarantee the country a reliable supply of food and agricultural raw materials. At the present time, in spite of certain progress, the situation remains acute in a number of regions with respect to the public supply of meat, milk, vegetables, and fruit. In UkSSR the average annual production of the gross output of agriculture is to increase 14 percent, including 29 percent for grain, 21 percent for sugar beets and sunflower seed, 18 percent for meat, and 9 percent for milk. The branches which process and store agricultural products and agricultural machinebuilding will undergo preferential development.

Special measures have been worked out to substantially expand the production of oilseed crops.

The measures adopted in the plan for further development and strengthening of the material and technical base of the agroindustrial complex and for radical improvement of its activity are called upon to substantially increase the indicators of per capita consumption of the most important foodstuffs so that the targets envisaged by the USSR Food Program are reached by 1990. For instance, per capita meat consumption of our country's population is to increase from 61 to 70 kg over the 5 years, that of milk and dairy products from 323 to 330 kg, that of vegetable oil from 9.7 to 10.2 kg, that of vegetables and melons from 102 to 127 kg, and that of fruit and berries from 46 to 68 kg.

Paramount importance is being attributed to the production of nonfood commodities in the State Plan for Economic and Social Development of the USSR. The task has been set of saturating the market in a short time with consumer goods necessary to the population, at the same time accomplishing radical shifts in improvement of their quality and assortment. To that end plans call for large-scale reconstruction of existing enterprises, above all in light industry. More than 11 billion rubles of capital investments, or 25 percent more than in the 11th Five-Year Plan, have been allocated to its development. All the country's machinebuilding ministries have been enlisted to produce the most up-to-date equipment for light industry. Over the 5 years the production of nonfood commodities in the USSR will increase 35 percent, including a 1.5-fold increase in production of durable consumer goods, housewares, and household chemical products. In the years of the 5-year planning period production will include 51 million radios, 50 million television sets, 31 million refrigerators, about 30 million washing machines, and many other household appliances.

The basic tasks of the State Plan are aimed at a further rise in the prosperity of the people and a comprehensive development of the personality, which is the highest criterion of the optimality of acceleration of socioeconomic development. It has been manifested in all aspects of the plan--in the very model of reproduction of the social product, in shaping the proportions in the national economy, and in the improvement of investment policy and structural policy. The social orientation of the 5-year plan has been noticeably strengthened. At the same time one of its most important distinguishing features is that the social program of the 12th Five-Year Plan is itself called upon to promote a rise in the efficiency of social production and a full-fledged development of the work activity and initiative of the broad working masses.

Over the period 1986-1990 the policy concerning the growth of personal income is organically linked to the targets outlined for raising the productivity of social labor and for expanding the production of consumer goods and services. For instance, three-fourths of the rise (by 25-30 percent) of wage rates and salaries in the sphere of physical production will be accomplished with the resources of enterprises and branches themselves. The resources necessary for those purposes must be earned by work collectives by improving the organization of production and by performing a growing amount of work with fewer workers. This in fact is the point of the vigorous policy in the area of distribution, which is aimed at realizing the fundamental principles of social

justice in a socialist society. A large new step will also be taken toward increasing the remuneration of workers in the nonproduction sphere--teachers, physicians, lecturers in tekhnikums and VUZ's, and people employed in cultural and educational institutions.

On the whole over the 5 years the average wage of workers and employees in the USSR will increase almost 15 percent and in 1990 will reach 218 rubles per month. At the same time the remuneration of kolkhoz members will increase 18 percent, and their real income will come practically even with the earnings of workers and employees. In UkSSR real personal income will rise 14 percent, and payments and benefits from social consumption funds will increase 19 percent and in 1990 will reach a per capita level in the republic of 600 rubles (against 510 in 1985).

The State Plan for Economic and Social Development of the USSR Over the Period 1986-1990 contains the thrust of an immense moral force. The determining idea runs through it that acceleration of socioeconomic development and a rise in the prosperity of the people are determined to a decisive degree by the human factor--by the creative approach to the task, by an unceasing search for effective solutions, and by higher labor productivity. Only this can and must become the effective first cause and principal source of augmentation of the national wealth and the pivot for new success on the road of building communism.

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## INVESTMENT, PRICES, BUDGET, FINANCE

### CHAIRMAN DEMENTSEV OUTLINES NEW GOSBANK PROGRAM

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[Article by V.V. Dementsev, board chairman of USSR Gosbank: "The Times Oblige Us to Work in a New Way"]

[Text] The Soviet people are strenuously working on the implementation of the decisions of the 27th CPSU Congress, the June (1986) Plenum of the CPSU Central Committee and the fifth session of the 11th Convocation of the USSR Supreme Soviet, which approved the State Plan of USSR Economic and Social Development for 1986-1990.

The basis of the 5-year plan of USSR economic and social development for 1986-1990 is the policy adopted by the April (1985) Plenum of the CPSU Central Committee and approved by the 27th party congress of acceleration of the country's social and economic development and the transition of all sectors of the national economy to a path of intensification and to an economy of a high level of organization and efficiency.

The plan outlines big advances that would ensure the accomplishment of the chief task of the 5-year plan. National income used for consumption and accumulation will grow by 22.1 percent. At the same time, the share of the accumulation fund in the national income will increase from 25.9 percent in 1985 to 27.6 percent to 1990. It is planned to increase industrial production volume by 25 percent and retail trade turnover by 33.4 percent.

Capital investment in sectors directly linked to growth of the people's well-being will be significantly increased.

In his speech at the June (1986) Plenum, Comrade M.S. Gorbachev stressed: "Our successes in the 12th Five-Year Plan will depend on how we carry out work in the future on improving management and the entire economic mechanism.... On the one hand, we must further strengthen centralized elements in management of the national economy.... And, on the other, expand in every possible way rights and economic independence and increase the responsibility of enterprises and associations for the results of their work. In this, the party proceeds from the need of a general transition to economic methods of management, expansion of cost accounting, able use of all levers and stimuli

and a strengthening of their influence over economic and social processes in the national economy."

At the Plenum of the CPSU Central Committee and the session of the USSR Supreme Soviet it was pointed out that the immovable foundation of centralized planning and management of the economy is realization of a unified scientific-technical, social, structural, investment and financial policy with strengthening of the democratic principle of management, expansion of rights and increased responsibility of associations and enterprises. The attention of central economic agencies whose work calls for radical improvement should be concentrated specifically on this.

M.S. Gorbachev's address also pointed out: "Questions of improving credit and all banking work have come to a head. In changing over to new methods of management, we must increase the role of the bank as a most important organ of management." This places before the banking system tasks of heightened importance and responsibility.

In July of the current year a conference was held of managers of USSR Gosbank and its republic offices at which questions were examined of the increased role of USSR State Bank in the development of the country's economy in the light of the decisions of the 27th CPSU Congress and the July (1986) Plenum of the CPSU Central Committee and restructuring of the financial and credit mechanism as an inseparable part of the integrated system of management of the national economy.

At the conference, the need was stressed for strengthening the centralized element in management of finances with simultaneous creation of conditions contributing to the expansion of cost-accounting independence of associations and enterprises, greater impact of credit on the development of production and bolstering its effectiveness and its involvement in economic turnover of above-norm commodity stocks, observance of contractual and payment discipline in all part of the economy, improvement of financing and credit extension to the agroindustrial complex as a single whole, strengthening of monetary circulation and development of savings.

In examining the 1985 report of USSR Gosbank, the existence was noted of serious defects and oversights in its work. It was pointed out that USSR Gosbank has as yet not restructured its work in conformity with the demands of the 27th CPSU Congress and with measures being implemented in the country for the purpose of accelerating social and economic development. Bank institutions have not ensured the necessary influence of credit on growth of production efficiency, strengthening cost accounting and intensifying the regime of economy. Credit in many cases has been granted to enterprises, kolkhozes and sovkhoses without adequate economic grounds.

In a number of republics, fulfillment of cash plans has not been secured. A number of other defects was also pointed out in the work of Gosbank institutions.

On the basis of the decisions of the 27th party congress, the June (1986) Plenum and recommendations made at the conference held at the CPSU Central

Committee with Gosbank managers, bank institutions in the process of fulfilling the functions characteristic of them must more actively promote intensification of public production, prevent the development of economic processes requiring unjustifiably high expenditures, create a flexible and effective system of monetary and credit relationships, more fully use the power of money, credit and bank sanctions and increase the effectiveness of their influence for the purpose of accelerating advancement on the path of economic and social progress.

One of the most important spheres of bank activity constituting the basis of its durable ties to the economy is extension of credit to the national economy. In conformity with the decisions of the 27th party congress and the April (1985) and June (1986) plenums of the CPSU Central Committee, Gosbank is carrying out a radical restructuring of the credit mechanism's operation for the purpose of increasing its impact on the fulfillment of plans of economic and social development, strengthening plan and financial discipline and ensuring the rational employment of material, labor and financial resources. This work has already started although it should be admitted that we have as yet not succeeded in putting all resources into operation.

The state's loan fund is continually growing. The amount of short-term investment as of 1 July 1986 amounted to 349 billion rubles and of long-term to 71 billion rubles. More than half of the economy's working capital has been formed through bank credit. If we were to analyze the state of affairs in the use of the loan fund in the past, it would be noted that the growth of credit investment has not always been economically justifiable, as in a number of sectors credit has performed functions not characteristic of it in replacement of other financial sources.

Under present-day conditions, there is a certain specific task--to overcome the existing "cost" character of bank-credit ties with the economy, to direct credit policy not toward growth of credit outlays (especially those types of credit which are weakly controlled by the bank, for example, payment credit [platezhnyy kredit]) but toward boosting the effectiveness of their use, reflecting the real growth of effectiveness and profitability of enterprises' economic activity. The more products of good quality, socially necessary for the economy and the population, are produced at a given level of credit outlays, the higher their return.

Our urgent task is to carry out a credit policy which fully is in keeping with the interests of an intensive economy and meets the requirements of resource conservation. It is necessary to secure the real purpose of credit and strict observance of the principles of credit extension and to strive for the fullest possible provision of credit for commodity stocks and forthcoming production output, which will create real conditions for boosting the effectiveness of public production and steady growth of accumulations.

In the course of implementation of the decisions of the 27th party congress, Gosbank is restructuring its work, aiming it at the thrifty use of credit resources and the attainment of a large correspondence between the growth rate of credit and that of volume of production. Whereas during 1981-1985, the average yearly rate of growth of short-term credit outlays amounted to 8.7



percent, in 1985 the figure was 6.1 percent and for the first half of 1986 growth was equal to 4.0 percent. Credit outlays as of 1 July 1986 compared to 1 July 1985 had grown 4.5 percent with a growth of industrial production of 5.6 percent, but for trade they were reduced 1.8 percent with a growth of commodity turnover of 6.8 percent.

In the case of credit extension to associations and enterprises, Gosbank institutions proceed from the requirements of ensuring planned growth of production volume in 1986 without growth of reserves of physical assets. In this connection, balances of physical stocks in amounts exceeding their availability for the corresponding date in 1985 are not accepted for credit extension.

Gosbank has carried out specific measures for the creation of an economic barrier to the production of unpopular goods and goods of low quality. Specifically, credit extension has been terminated for jewelry and rugs, crystal and other commodities that are in weak demand by buyers.

The anti-cost character of management is bound to be helped by norms of the maximum permissible level of commodity stocks per ruble of production-output (work, services) volume for industrial, contract, supply and sales activity and the basic operation of transport and communications enterprises. Gosbank provides credit extension for commodity stocks above the norms of own working capital as a rule within the limits of the balance stemming from the established maximal permissible level of stocks. On the basis of the policy of resource conservation, it is not permitted to extend credit for unjustified stocks exceeding this maximum permissible level.

Taking into consideration the requirement of strengthening cost accounting and implementing a real regime of economy, demands have been increased on economic validation of solicited credit. Thus, in the process of drawing up credit plans for the first quarter of the current year, applications for credit were reduced by 7 billion rubles, for the 2nd quarter by 6 billion rubles, for the 3rd quarter by 8.3 billion rubles and for the 4th quarter by 12 billion rubles.

Important changes are also being introduced into the practice of credit planning. For the purpose of providing more complete material and financial balancing of plans, practical preparation is going on for the transition to annual credit planning beginning with the second year of the current 5-year plan.

The bank actively participates in implementing measures for improving the economic mechanism, putting into practice the new principles of management of the economy and in conformity with them is restructuring its own banking mechanism of credit extension, financing and settlements.

At the present time, cardinal measures have been adopted for significant curtailing of forms of credit. On the basis of what has been done and experience that has proved itself, many national-economic sectors are going over to the new method of credit extension on the basis of amalgamated indicators. Under the conditions of its use, excessive regulation in credit

relationships is being eliminated, better maneuverability of loaned capital is being provided for enterprises and organizations. At the same time, greater effectiveness is being secured for bank influence and control over the ruble with simultaneous reduction of work both at Gosbank institutions and in the economy.

Measures for improving the credit mechanism are being carried out in close coordination with the new methods of management and stimulation of the production of leading sectors of the national economy and industry.

A great deal of attention is being paid to development of the machine-building industry. On the basis of priority growth of the machine-building complex in the country's economy, Gosbank has increased economic work relating to having credit help raise the efficiency of machine-building production, accelerate scientific and technical progress and strengthen cost accounting.

Short-term credit by Gosbank, forming about half of the working capital of machine-building enterprises, exceeds 14 billion rubles. The electrical equipment and machine-tool building industries and instrument making, called upon to increase at an accelerated rate the production of new generations of equipment, and also sectors producing machines for the agroindustrial complex are being granted credit in the amount of approximately 9 billion rubles.

Measures have been worked out of having credit actively influence the restructuring of machine building for the production of machines, mechanisms and equipment of a new type and strengthening the material and technical base of other sectors of the national economy.

Effectiveness of bank control over effective use of credit has been increased. Thanks to the measures implemented for making the credit extension system stricter and for ending issue of loans for commodity stocks formed through violation of the production process, reduction of the size of credit granted for above-plan commodity stocks has been achieved. Measures are being carried out for putting an end to the extension of credit to unprofitable enterprises that do not ensure repayment of loan indebtedness.

Major importance is attached to the further improvement of temporary credit and other economic relationships with enterprises where the new methods of management are being employed, such enterprises, for example, as Sumy Machine-Building Scientific Production Association imeni M.V. Frunze and AvtoVAZ Production Association.

In this connection, it is planned to actively utilize the experience of the said associations for self-financing of production and social development. Gosbank has established a new procedure of credit extension for enterprises and Associations of the USSR Ministry of Chemical and Petroleum Machine Building as well as other industrial ministries which are being shifted to full cost accounting.

In conformity with the decisions of the party and the government on further improving management of the agroindustrial complex, a number of measures were implemented for improving credit relationships with the operational units of

this complex. A procedure has been improved for drawing up and executing plans for short-term credit extension. The number of credit-extended facilities was reduced from 50 to 12 and a single procedure was worked out for extending credit to kolkhozes, sovkhoses and other agricultural enterprises for the aggregate amalgamated units. Gosbank institutions in the process of credit extension have increased pressure on fuller mobilization by units of their internal resources in paying for production costs within their own means. Credit outlays for production of kolkhozes and sovkhoses this year will be growing at a moderate rate.

Significant changes are being introduced into the character of credit relationships with light industry. In addition to the implementation of measures for strengthening cost accounting, expanding the rights of associations and enterprises and improving the interrelationships of industry and trade, a new procedure of credit extension to enterprises of this sector is being introduced based on amalgamated indicators. Credit extension is being expanded for measures increasing production of new goods and improving their qualities, and financial and credit sanctions are being intensified for nonobservance of contract commitments. All these measures are aimed at boosting the role of credit in expanding production and strengthening the economics of production associations (enterprises) belonging to the system of the USSR Ministry of Light Industry.

Special attention is being paid to monitoring observance of economically valid correlations between the growth rate of credit outlays, volume of production and balances of commodity stocks. This year commodity stocks with a value of 3 billion rubles have not been accepted for credit primarily because of their accumulation in sizes exceeding last year's actual supply prepared in excess of existing production capacities for their processing while not enjoying demand or being provided with sale orders.

Important tasks facing the trade systems, councils of ministers of union and autonomous republics and local soviets of people's deputies were designated by the decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning, Economic Stimulation and Management in State Trade and Consumer Cooperatives."

The restructuring of credit relationships with trade is being done in the direction of increasing bank monitoring of the work of trade organizations, making granting of loans for individual varieties of goods stricter and stimulating leading forms of trade organization.

In the complex of measures designated by this decision, the role of credit is strengthened for improving economic activity of trade enterprises and organizations and in their production and social development, and measures of economic influence on trade enterprises that permit slowing down of turnover of working capital and accumulation of above-norm commodity stocks are being more widely employed. The credit mechanism is being improved in the direction of providing a more complete linkage of credit to the movement of goods, simplification of the credit extension technique and reduction of the number of loan accounts.

An important field of bank activity is long-term credit extension and financing of capital investment. In this work, Gosbank is guided by the decree of the CPSU Central Committee and the USSR Council of Ministers on questions of further improvement of management of the country's construction complex and the economic mechanism in construction.

In accordance with this decree, the responsibility of construction organizations and their higher organs is being increased for introducing achievements of scientific and technical progress, leading forms of labor organization and improvement of the economic mechanism in construction.

The importance is being increased of contract agreements as the principal document regulating interrelations of clients and contractors and defining their reciprocal economic responsibility for the fulfillment of state plans.

At the present time, financing and credit extension for all associations, enterprises and organizations included in the agroindustrial complex with an annual volume of capital investment of 54 billion rubles is concentrated in Gosbank.

The broad program of capital investment requires tremendous work on more effectively using monetary resources at all stages of the investment process. At the same time, as shown by checks, not everything is going well in this sector of bank work. Large surpluses are permitted at the initial stage of the planning cycle. Frequently, plan decisions are subsequently recognized as unsatisfactory and are then revised.

In revision of planning estimates of financing construction projects by Gosbank institutions, significant overestimates are made of the cost of work despite departmental examination carried out of the estimate documents. Thus in 1985, in regard to verified volume of work in the amount of 14.5 billion rubles, the estimated cost of financed construction projects was reduced by 512 billion rubles as a result of discovery of cases of improper use of metal, metal pipes and uneconomical transport expenditures.

Control has been increased over the process of financing capital investment. Title lists for construction projects newly started in 1986 are accepted by Gosbank in strict conformity with prescribed norms for duration of construction, as determined by Decree No 328 of the CPSU Central Committee and the USSR Council of Ministers of 13 March 1986.

On the basis of Gosbank proposals, 7,600 newly started facilities with an annual capital-investment volume of 394 million rubles were excluded from the draft of the 1986 plan. This made it possible to allot the released funds for the completion of priority projects and to increase targets for the startup of fixed capital in amounting to 1.2 billion rubles.

Gosbank has adopted measures for improving the procedure of credit extension and financing of capital investment aimed at radically improving the investment process. The list of measures for which credit is being granted to agricultural enterprises has been unified, the number of documents provided the bank for arranging financing has been reduced, and the temporary credit



and control mechanism in the work of increasing the effectiveness of capital investment on the basis of use of the latest technical achievements, concentration of capital for the most important priority projects, reduction of construction cost and acceleration of the time period of startup is being more actively used.

The economy and the bank face responsible tasks in the field of noncash transactions. Many enterprises allow serious violations of settlement discipline and holding back of payments for deliveries of products. A significant part of bank loans is not returned on time, and the relative indebtedness of debtor to creditor is very large.

In fulfillment of the decisions of the 27th CPSU Congress, significant changes were introduced into the arrangement of settlements. Economic responsibility for the fulfillment of contractual obligations by suppliers and purchasers was increased, and more tangible measures of action for violations of conditions and manner of settlements were introduced. At the present time, a direct connection has been established of the absolute size of deductions into the material incentive fund from the fulfillment of targets and product and commodity delivery obligations to concluded contracts and work orders of foreign-trade organizations.

The attention of heads of ministries and departments and directors of associations, enterprises and organizations is directed to the inadmissibility of late settlements with suppliers for delivered products. USSR Bank has intensified monitoring the state of settlements in the national economy and has started to apply more effective measures to enterprises that consistently violate payment discipline. For late payment for delivered products, the size of the fine has been doubled--from 0.04 percent for each day of default of the sum of the unpaid products to 0.08 percent. The sum of this fine goes into the material incentive fund of buyer enterprises.

In accordance with the decree of the USSR Council of Ministers "On Measures for Intensifying the Struggle Against Unearned Income," Gosbank more actively uses noncash settlements as a means of preliminary control over the observance of socialist legality in economic relationships, especially over the marketability of settlement documents. Measures have been adopted for the development of noncash settlements of procurement organizations with individual deliverers of agricultural products.

A significant role has been assigned to the settlement mechanism in the system of measures for radically improving product quality. The task is to more intelligently and justifiably economically employ the entire arsenal of measures of bank influence on improving settlements for products delivered in accordance with concluded contracts.

A necessary condition for the fulfillment of the social and economic program of the 12th Five-Year Plan is bolstering monetary circulation and full satisfaction of the population's effective demand. In the plan of USSR economic and social development for 1986-1990, the scale and directions of growth of the population's income are tied in to the projected rise of labor productivity and expansion of production of goods and services. In this way,

the necessary prerequisites for increasing the stability of monetary circulation are provided for.

The correctness of organization and quality of planning of monetary circulation depend to a large degree on the effectiveness of the work of Gosbank and all its republic and local institutions which have at their disposal many possibilities of exerting influence in the course of the functions inherent in the bank on increasing the flow of money into its vaults and economy in expenditure of capital in the economy. For the purpose of bolstering monetary circulation and boosting the ruble's purchasing power, the efforts of bank personnel should be aimed at achieving balancing of the monetary income and expenditures of the population and all-round assistance to growth of production volume and development of paid services for the population contributing to the satisfaction of consumer demand. At the same time, it is necessary to facilitate the solution of two problems--to work for increasingly higher product quality and to ensure their output with the least expenditures.

In fulfillment of the decisions of the 27th congress, a number of measures was implemented for improving planning of monetary circulation. Great cooperation was achieved in the operation of economic organs of management in the development of basic positions of cash plans and their coordination with USSR Gosplan, the USSR Ministry of Finance and the councils of ministers of union republics. This made it possible to accelerate the approval of cash plans and to improve their quality.

This year Gosbank has strengthened control over the course of fulfillment of the cash plan. This in addition to other measures made it possible to increase receipts of organizations providing paid services to the population compared to the plan and to overfulfill the plan of attracting the population's capital through deposits and sale of bonds of the freely circulating loan.

But the plan for the total volume of commodity turnover for the first half of this year has not been fulfilled, which is principally due to the reduced sale of alcoholic drinks. At a conference of the Khabarovsk Kray party organization's aktiv, Comrade M.S. Gorbachev directed attention to the fact that "of late serious measures have been adopted for stimulating production of consumer goods, moreover not only at specialized enterprises but at practically all plants and factories, including defense. But the situation continues to be difficult. Serious efforts are needed in order to remove the difficulties and to secure normal goods and monetary turnover. Hence it becomes necessary for the bank to exercise daily monitoring of fulfillment of measures planned by the party and the government for increasing commodity resources. This also requires that Gosbank institutions thoroughly analyze and periodically inform republic councils of ministers, oblast, city and rayon ispolkoms of soviets of people's deputies of the state of monetary circulation, submitting for their scrutiny valid proposals for increasing production of consumer goods and other sources for receipt of money.

It is necessary to strengthen the role and importance of balances of monetary income and expenditures of the population so that they actually become an

important part of the State Plan of USSR Economic and Social Development and development plans of union and autonomous republics, krais and oblasts. It is all the more necessary now when the rights of republic and local organs have been expanded for the purpose of intensifying their influence on the economic activity of all enterprises located on their territory regardless of departmental subordination and when their responsibility has been increased for the solution of social questions, including the satisfaction of the population's need for goods and services.

Closer linking of the wage fund to income from product sales, strengthening of control over the issue of funds for remuneration of labor, increasing the responsibility of associations and enterprises for economical expenditures of funds for wages and increasing their interest on the results of labor will have a favorable effect on strengthening monetary circulation and stability of the ruble.

It is necessary to increase the effectiveness of bank control over expenditure of funds for wages, which, as pointed out in a discussion of the results of Gosbank's operation for 1985, was weakly performed. Some Gosbank institutions do not make the necessary demands on enterprises and organizations for the elimination of existing defects resulting in the forming of overexpenditures of the wage fund. This particularly applies to a number of Gosbank institutions under the jurisdiction of the Ukrainian, Kazakh, Tajik, Kirghiz, Armenian and Estonian republic offices.

The quality must be improved of economic analysis of the wage-fund expenditures by enterprises and organizations and observance of a normative correlation of growth of the average wage and growth of labor productivity, existing reserves for economy of funds for remuneration of labor need to be more fully revealed, demands should be more determinedly made on them to eliminate defects in management, and pertinent questions should be more effectively raised in local party and soviet organs and at people's control organs.

The operation of the savings banks' system has become more active. The main directions along which restructuring of their operation is proceeding are fuller mobilization of monetary resources used in the development of the national economy and social measures and a higher level of cash-payment serving of the population.

Measures are systematically being carried out for improving the work regime of savings banks, strengthening their material and technical base and improving the forms of labor organization and stimulation.

As of 1 July, balances of deposits compared to balances as of 1 January of this year had grown 9.7 billion rubles and amounted to 230.5 billion rubles. In this period bonds of the freely circulating loan were sold in the amount of 1.4 billion rubles, or 2.2-fold more than in the first half of 1985.

The size of cashless receipts of workers' monetary income in deposit accounts for the first half of the year amounted to 21.6 billion rubles and increased compared to the corresponding period of last year by 11.7 percent, while the

volume of cashless settlements of the population with trade, municipal and other enterprises grew by 5.9 billion rubles, or by 9.5 percent.

However, the attained work level of savings banks and the quality of their service for the population still lag behind today's requirements. It is necessary to universally implement measures for improving their operational regime and increasing the role of savings banks in systematic organization of monetary circulation and fuller satisfaction of the requirements of the population for services provided by savings banks and to expand their functions.

In analyzing the bank's activities for the period that has elapsed since the April (1985) Plenum of the CPSU Central Committee and the 27th party congress, it can be said that only the first steps relating to its restructuring have been taken. It is necessary to ensure restructuring of all the activities of Gosbank in conformity with the demands stemming from the decisions of the 27th CPSU Congress and the July (1985) Plenum of the CPSU Central Committee and to implement measures aimed at improving banking, significantly enhancing the role of credit in strengthening cost accounting and developing the initiative of enterprises, associations and organizations. It is necessary to mobilize the capabilities of the settlement and credit mechanism for the attainment of more stable results in the operation of the economy and fulfillment of the strategic tasks of development of the economy and the 12th Five-Year Plan.

In fulfillment of the decisions of the 27th party congress and the June (1986) Plenum of the CPSU Central Committee on the need of increasing the role of the bank as a very important organ of economic management, its work in planning economic and social development of the country and ensuring improvement of the organization of planning of monetary circulation and credit should be more active.

For this purpose, it is planned to carry out a complex of measures for interlinking of production, financial and credit planning, expanding the rights of local institutions in the field of regulation of monetary circulation of credit relationships and strengthening a differentiated approach to enterprises.

It is necessary to direct attention to the existing temporary credit relationships with the economy of the Far-Eastern region and to implement measures making it possible to stimulate in the process of credit extension, financing and organization of all monetary turnover a radical improvement in the use of the Far East's production potential.

As a concrete measure for restructuring of bank activities, the task is set to increase control of economically based extension and timely repayment of credit with observance of a regime of economy for material, labor and financial resources; to improve work relating to financing and credit extension of capital investment and to strive for observance of normative construction time periods; to pay special attention to the organization of correct settlement and credit relationships with enterprises and organizations of the agroindustrial complex and to intensify control over the rational and economical use of own and borrowed funds.



A significant revision is needed of the style and methods of operation of bank institutions and the central apparatus of Gosbank. This revision is proceeding in many ways, the chief of which are to direct bank personnel to effective use of monetary, credit and settlement levers as essential factors in the successful solution of tasks of intensification of production and to increase the responsibility of the apparatus for better economic work.

Measures are being put into practice for the elimination of formal office-management methods. The vital connection with local bank institutions is being strengthened, and businesslike instruction is conducted in introducing the new conditions of management. In 1986, members of Gosbank's board, chiefs of administrations and their deputies and also leading specialists are providing direct assistance to a large number of bank institutions in the solution of a number of important problems of bank work and organization of relations with the economy.

In the course of fulfillment of the requirements of the April (1985) Plenum of the CPSU Central Committee and the 27th party congress, reports of bank offices are heard at USSR Gosbank board sessions.

Gosbank's board, on discussing the work of the Rostov Oblast office, noted that it is restructuring forms and methods of work and increasing the responsibility of managerial personnel and specialists for the entrusted task. The oblast's economic and social problems were studied more deeply and proposals were submitted to party and soviet organs on questions of improving the work of industry under the new conditions of management.

At the same time, examination of materials on the work of the Uzbek, Kirghiz and Georgian republic offices shows that the level of management of bank institutions in these offices does not meet imposed requirements. The offices have not adopted appropriate measures for radically revising work style and methods and boosting the effectiveness of credit investments, as a result of which credit's impact on the development of intensive forms of management has not produced the required results.

The work of these offices in the field of monetary circulation has also been rated as unsatisfactory. Many regions of the republics consistently do not fulfill cash plans and do not adopt necessary measures for improving work relating to monetary circulation.

The Gosbank board has strictly explained to the managers of these offices that they have weakly opposed occurrences of local favoritism and bureaucracy. Concrete measures were set forth for improving their work and providing assistance in the solution of individual questions.

Serious demands are being made in regard to training and educating personnel, upgrading their job qualifications and reorienting economic thinking in the direction of solving problems of acceleration of social and economic development. The Gosbank board has worked out and approved a long-term plan of measures for improving work with personnel, upgrading the quality of training bank specialists and reducing turnover. The structure of

subdivisions of the bank's central apparatus and offices engaged in settlement and credit services for the agroindustrial complex has been significantly changed.

In addition to this, necessary measures were adopted for further strengthening socialist legality in the relationships of an establishment to the bank and improvement of the bank mechanism, and a plan was approved for the reissue before 1 January 1987 of normative bank documents providing for their unification, simplification and shortening.

Work is being conducted on improving statistical reporting and cutting down on interdepartmental and intradepartmental correspondence. Gosbank's annual reporting has been reduced by 12,600 indicators, or by 54.3 percent, and the number of short-term credit designations, taking into consideration individual items, was reduced from 70 to 40. The number of statistical studies performed by Gosbank's Main Computer Center decreased.

The problem is to put into operation everything designated for enhancing the role of the banking system, to raise to a higher level ideological and educational work with personnel, to increase the personal responsibility of each employee for the entrusted task and to strengthen labor discipline.

The CPSU Central Committee in the Appeal to Workers of the Soviet Union called on them to launch on a broad scale a nationwide socialist competition for the successful fulfillment of the targets of the 12th Five-Year Plan and to translate bold plans and ideas into the energy of practical action.

In a decree enacted by the CPSU Central Committee, the AUCCTU and the Komsomol Central Committee on this question, concrete guidelines are provided for the competition. Collectives of bank employees have included themselves in a nationwide movement for implementation of the 12th Five-Year Plan and are doing everything necessary for the successful fulfillment of tasks for the Gosbank system stemming from the decisions of the 27th Congress of the Communist Party of the Soviet Union and the June (1986) Plenum of the CPSU Central Committee.

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## AGRO-ECONOMICS, POLICY, ORGANIZATION

### GOSBANK OFFICIAL ON APK FINANCIAL MANAGEMENT PROBLEMS

Moscow SELSKAYA ZHIZN in Russign 7 Dec 86 p 1

[Interview with Viktor Rodionovich Arkhipov, deputy chairman of USSR Gosbank, by SELSKAYA ZHIZN correspondent P. Shcherbakov: "Money Must Be Accounted For"; date and place not specified; first paragraph is source introduction]

[Text] The 27th Party Congress gave construction workers a strategic task: to at least halve the capital construction time table and the whole investment cycle both for retooling and for creating new production capacities. The economic mechanism in this field is undergoing fundamental restructuring. At the present time it is particularly important to get rid of bad management, wastefulness, red tape and the urge to push for volume in new facilities and to seek out ways to speed up the construction process with great attention to quality and the economy of labor and material resources. How is this process influenced by Gosbank, the main center for financing and extending credit to all associations, enterprises and organizations which make up the country's agro-industrial complex? SELSKAYA ZHIZN correspondent P. Shcherbakov interviews V. Arkhipov, deputy chairman of USSR Gosbank on this question.

[Question] Viktor Rodionovich, I have a folder with letters in my hand. Judging by the mail readers enthusiastically support the efforts of the party and government to improve fundamentally the economic mechanism in construction. However, there are those who are puzzled. For example, we received the following: "Now, when the whole country is a forest of scaffolding for new construction, here in the Turkmen SSR the republic Gosbank is threatening to cut off financing for a group of hot houses at the Sovkhoz imeni Krupskaya..."

[Answer] Is that the Tashauz Oblast? I know the case and to say "cut off" is an exaggeration. Let's take a look at what is taking place there. The trust Turkmenagrospeetsmontazh [Trust for Special Agricultural Construction in the Turkmen SSR] at an estimated cost of 5 million rubles has been building the hot houses for ten years instead of finishing in 2 according to established standards. Of 6 hectares, only 2 have been put into operation. Where is the return in real production? The people's money must be accounted for, I want to remind our Turkmen comrades

that it will be necessary to suspend the project unless things aren't straightened out.

[Question] If this were only an isolated case!

[Answer] Precisely, a contractor for the USSR Minpromstroy (Ministry of Industrial Construction) has been building the Tikhoretsky meat-packing plant in Krasnodarsky Kray since 1976, and there is no end in sight. Need we repeat that APK [Agro-industrial complex processing sites] are desperately needed. Also, the Samarkand Poultry Factory has been undergoing expansion since 1982 at a pace that has forced postponement of its completion until 1988. Certainly not only Gosbank but every Soviet citizen has the right to ask why millions of rubles are tied up in construction projects that seem endless. Where is the return? As far as we who finance these projects are concerned, we bear full responsibility to the party and government for lack of oversight and the long drawn out projects.

No one can consider it normal that outdated technology and equipment which do not answer needs of scientific and technical progress are slated for use in several APK projects under construction.

Several ministries and APK departments are experiencing much difficulty in avoiding the usual delay in providing Gosbank with documentation for large projects. So far we have for 1987 just slightly more than half of the title sheets for new construction projects. In fact, this job should have been completed already. At the same time some again try to stretch out construction deadlines so that the bank must return documents which previously approved a long construction time. All this delays the beginning of work and strains the financing.

[Question] Yes, the readers do not skirt this question either. The main thing now however along with raising the demand for quality construction and accelerating the investment process, is creating favorable conditions and taking practical measures to enhance the role of plans and to improve the whole system of controls and incentives.

[Answer] Precisely. Beginning in 1987, for example, APK enterprises and organizations have started determining many capital construction plan indicators themselves. This determination, of course, is within the limits of capital investment and overall construction and installation work. The state's resources are not limitless, and it is necessary to use them wisely and efficiently. However, much can be done! Directors of kolkhozes and sovkhoses and other APK enterprises have received the authority to approve title sheets for project planning and research operations and restarted production construction projects with an estimated cost of up to 1 million rubles; RAPO [Rayon agro-industrial associations] can approve them up to 2 million. Obstacles have been eliminated for on site drafting of documentation for re-tooling and renovation of production facilities with an estimated cost of up to 500,000 rubles.



Also RAPO and other APK management organs now have the authority to reallocate, during the third and fourth quarters, state capital investment funds unutilized by individual enterprises and organizations, during the first and second quarters to the financing of other planned projects. As you can see, this is a green light for initiative and resourcefulness.

In addition, enterprises with their own funds and material resources may undertake construction and acquire vehicles and equipment in excess of state limits. Highly favorable conditions for this activity have been established. Certainly the importance of an enterprise's own funds as a source of financing in its transition to a position enabling self-liquidation of debt and self-financing has been enhanced greatly. There also exist possibilities for broad development of supplementary construction projects. However, these possibilities are not yet exploited everywhere. Customers do not rush to settle with contractors for work done in a timely manner. This in fact extends construction timetables and again leads to wasted effort. Suffice it to say that overall across the country such indebtedness has reached 1.9 billion rubles. This work goes especially poorly in Uzbekistan and Georgia.

[Question] How should one evaluate the fact that the chairman of the Kolkhoz imeni Dvadtsat Vtorogo Partyezda in the Vyatsko-Polyansky Rayon in Kirov Oblast T. Galiakhmetov and the deputy chairman of the Lebyazhyevskiy soviet of RAPO in Kurgan Oblast M. Beldiman wrote to us about the endless stream of paper and the huge quantity of permits and agreements which must be presented to banking institutions in order to initiate financing. Is this really the situation?

[Answer] We have taken decisive measures in this area. We have reduced the number of documents required to initiate financing by a factor of four. Now only title sheets for internal and external construction projects, a plan for financing, and a contract calling for the completion of contract work need be presented to Gosbank. Long term credit procedures have been unified. Kolkhozes, sovkhoses and other APK enterprises and organizations receive long term credit for three types of projects instead of the earlier 42 types. Gosbank provides credit for up to 20 years on the construction and renovation of production capacities and for up to 7 years on technology acquisition. Credit for 15 years is available to kolkhozes for the construction of non-production projects.

However, one must admit that inertia and overcautiousness turn up here and there. The many rules that at one time served a need now are like blinders preventing bank personnel from seeing the real world and the real benefit of one or another of these initiatives. We are fighting vigorously against this. We demand that our regional offices strictly adhere to the important principles leading to project planning and financing in a standard period of time. USSR GOSBANK is actively furthering with money and credit the reorganizing of the mechanism, taking concrete measures to raise the efficiency of capital investment and its concentration in vital sectors, shortening timetables and raising construction quality, and also mobilizing internal reserves so as to achieve maximum production and national income for every ruble spent.

LEGAL EXPERT INTERVIEWED ON PRIVATE PLOT REGULATION

Moscow SELSKAYA ZHIZN in Russian 25 Dec 86 p 4

[Interview with professor M. I. Kozyr, sector head at the Institute of State and Law of the USSR Academy of Sciences, and G. V. Chubukov, senior scientific worker; by SELSKAYA ZHIZN correspondent B. Polyakov; date and place not specified: "In Conformity with the Law"]

/Text/ Interview at your request. On 1 May 1987, the law concerning individual labor activity, adopted during the last session of the USSR Supreme Soviet, will enter into force. Many readers of SELSKAYA ZHIZN, in letters sent in to the Editorial Board, have requested explanations for certain statutes of this law and particularly the attitude towards the private plot economy and collective horticulture and gardening. Our correspondent B. Polyakov met with two doctors of legal sciences -- head of a sector on legal problems of agriculture of the Institute of the State and Law of the USSR Academy of Sciences and professor M.I. Kozyr and senior scientific worker at the institute G.V. Chubukov -- and discussed your letters with them.

/Question/ To begin with, let us address the question raised by F. Ivanets of the village of Vasyutentsev in Cherkassy Oblast, in his letter sent in to the Editorial Board. What type of work is considered to be individual-labor and in what spheres is it permitted?

/Answer/ M.I. Kozyr. According to the law under discussion, it consists of socially useful work by citizens in the production of goods and the furnishing of services that is not associated with their work relationships with state, cooperative, other public enterprises, institutes, organizations and citizens or with intra-kolkhoz labor relationships. It is authorized in the sphere of domestic trades, domestic services for the population and in the socio-cultural sphere. Naturally, those types of activity prohibited by the law are excluded.

G.V. Chubukov. ITD /individualnaya trudovaya deyatelnost/; individual labor activity/ is tolerated on a permissive basis. This means that those persons who express a desire to perform such work must obtain permission from the executive committee of the local soviet. Moreover, it is noted that the law does not cover the carrying out of work that is paid for, work that is of a one-time nature or work the volume and wages for which are negligible. In short, ITD is regular paid for work.

Question L. Yevdokimova in the Crimean Oblast and other readers would like to know to what extent the private plot economy and collective horticulture and gardening are affected by the statutes of the law concerning ITD.

Answer M.I. Kozyr. For me, a scientist-lawyer, the fears of those who raise this question are clear and understandable. What is the problem? Recently, persistent voices have been heard (even in the press) stating that the private plot economy (LPKh) appears as an extremely specific and residual form of small-scale production, which is partly private in nature. There are those who maintain that there is no difference between individual handicraftsmen and owners of private plots, vegetable growers or amateur horticulturists. Hence the conclusion: impose a tax upon all of them!

In some areas, this situation reaches absurd proportions. For example, teacher A. Pshenichnaya in Trunovskiy in Stavropol Kray reports that local leaders are even preparing to carry out so-called examinations of the private plots. What are the owners of these plots doing? Are they not being distracted by unearned income from their plots? Certainly, such actions can only be viewed as being intentional and illegal. An owner of a private plot is a worker engaged in socialist materialized production -- a kolkhoz member, manual worker or office employee. Individual labor activity in the rural areas consists of the management of individual peasant farms, where they are still maintained, and the production of non-agricultural products for market. His principal occupation is to perform work on a public farm.

G.V. Chubukov. It is noted that in the USSR Constitution the management of a private plot and individual labor activity are mentioned in different articles. Moreover, although the state is legally responsible for furnishing assistance to citizens in the management of their private plots (Article 13), in the case of individual labor activity, the following statement applies: "The state regulates individual labor activity by ensuring its use in the interests of society" (Article 17).

The statutes of the law governing ITD are in no way meant to apply to the private economy or collective horticulture and gardening. And when an owner of a private plot or an amateur horticulturist brings his surplus products to market, be they meat, milk, vegetables, fruit or potatoes, any zealous wilfulness on the part of local "guardians of order" is unacceptable.

Question And what about those who convert the land surrounding their home into a source of income and thus engage in a profitable enterprise?

Answer M.I. Kozyr. Here there must be some input from the local soviets, society, the kolkhoz and sovkhos leaders and obviously from workers attached to legal protection organs. Indeed, those who are able to live without joining in public production are not located on the moon. Thus, the question might be asked, why is it that we merely grumble and yet do not undertake appropriate measures in accordance with the law? Are we closing our eyes to what is happening? Nobody but ourselves can restore proper order in our own homes.

Question It is apparent from the letters sent in to the editorial board that a great fuss is being made over the fact that the market prices are much higher

than those in the stores. It happens that some of the angry citizens demand "firm prices" at the market.

/Answer/ G.V. Chubukov. Is it necessary to resort to administration and to order an individual who is standing in front of the market counter to sell the fruits of his labor at more "fair" prices? I fear that such action could result in products such as dill, parsley, cucumbers and tomatoes no longer appearing for sale at the market. As is known, attempts to "squeeze" a tradesman at the market have never and will never produce any meaningful results. The principle must be as follows: more and better goods -- when this is the case, they will invariably be cheaper. And here a great deal depends upon the kolkhozes and sovkhozes. Upon whether or not they sell potatoes, fruit and other products at the market, as called for in the appropriate decree of the CPSU Central Committee and the USSR Council of Ministers. And the executive committees of rayon and municipal councils must constantly provide the farms with assistance in this regard.

And certainly (I wish to emphasize this fact once again), based upon existing legislation, all attempts by various dodgers and second-hand dealers to convert the private plot economy into a source for unearned income must be countered in a decisive manner.

/Question/ Life itself -- and many readers of this newspaper have written in concerning this point -- requires legal regulation of private plot management. As is known, there are many legal documents and yet not all of them have been solved in the proper manner.

/Answer/ M.I. Kozyr. Yes, the time is obviously at hand for assembling the numerous normative documents into a single all-union statute and providing it with new meaning, as called for in the decree of the CPSU Central Committee and the USSR Council of Ministers. This would result in more effective use of the potential of the private plot economy for increasing the production of food goods throughout the country.

/Question/ Does not all of this assume the organization of a link between public production and the private plot economy and making them more reliable?

/Answer/ G.V. Chubukov. Work is carried forward in a better manner in those areas where the local organs of authority and the kolkhoz and sovkhoz leaders display understanding and employ an intelligent approach towards the private plots and also public production. A recent roundtable discussion on this subject, held in Moscow in the Palace of Scientists, is recalled. The leaders of several kolkhozes in Krasnodar Kray, Belorussia and Lithuania participated in this discussion.

The chairman of a Kuban kolkhoz, an individual who had just recently taken over the farm, felt uncomfortable sitting at the roundtable. He had wilfully and bluntly established firm order on the private plots. Thus, in order not to be accused of arbitrariness and in the interest of creating a "democratic" appearance, he handed down a decision on regulating the management of private plots and he did so during this meeting of authorized kolkhoz representatives. Each individual, be he a kolkhoz member, teacher, medical worker or pensioner, was issued strict instructions as to what was to be sown or planted and on how many square meters. And a special committee visited the plots and, based upon



the seedbeds, determined how many cucumbers, tomatoes, onions and garlic were to be produced on each plot. And in the spring, upon learning that some had planted more early cabbage than authorized, he ordered the beds to be stripped in a manner such that only the number of plants authorized were left standing.

M.I. Kozyr. I would like to cite an example of another type. Some time ago, I happened to be at the Kolkhoz imeni XXII Partsyezda in Grodno Oblast. This farm has been headed for 32 years by Hero of Socialist Labor V.A. Baum. Work is proceeding well on this farm and also on the private plots of the kolkhoz members. Moreover, the kolkhoz displays constant concern for them. Here there are no problems with regard to the plowing of gardens or the acquisition and maintenance of livestock. And the results are readily apparent: there are 700 cows on 560 plots. There are many youth working at the kolkhoz.

G.V. Chubukov. It bears mentioning that this chairman also participated in the discussion which took place at the roundtable in the Palace of Scientists. His speech made a strong impression on all those in attendance. "We do not make any distinction" he said, "between 'yours' and 'ours.' Everything is ours, including both the kolkhoz and the private plots." Such is the situation.

M.I. Kozyr. Thus, their work is proceeding well. The positive experience accumulated in the management of private plots must be summarized, extensive use must be made of the various forms for issuing incentives to the best private plots and exhibits, reviews, competitions and fairs must be held. It is hoped that with the passage of time all of these measures will be acted upon.

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# LIVESTOCK AND FEED PROCUREMENT

## 1986 BELORUSSIAN MILK PRODUCTION, MEAT SALE DATA

Minsk SELSKAYA GAZETA in Russian 24 Dec 86 p 3

[Excerpts] Oblast [and Rayon] Indicators for Milk Production and Meat Sale in Kolkhozes and Sovkhozes of Belorussian SSR, 1 December 1986

				Yield per cow		Percent of fulfillment of annual milk pro- curement plan by all farm cate- gories
Milk production per 100 hectares of agricultural land (quintals)	Percent of calculation based on resources	In per- cent of 1985	Kilo- grams	Increase or decrease of 1985 level		
OBLASTS						
Minsk	631.2	106.9	109	2,624	249	103
Brest	568.5	104.7	109	2,677	236	104
Gomel	538.1	101.9	107	2,528	217	102
Vitebsk	463.8	88.8	106	2,472	188	99.2
Grodno	514.3	87.9	106	2,800	171	99.8
Mogilev	441.5	84.4	107	2,439	248	102
Total for BSSR	528.4	--	108	2,584	222	102

	Meat sold per 100 hectares of agri- cultural land (quin- tals)	Percent of calculation based on resources	Percent of 1985	Average daily weight gain of one head (grams)		Average delivered weight of one head of cattle (kilo- grams)	Percent of fulfillment of annual plan of meat pur- chases by all cate- gories of farms
				Cattle	Hogs		
OBLASTS							
Grodno	192.2	97.2	105	488	401	423	102
Brest	169.9	91.1	108	481	416	414	104
Minsk	161.1	82.9	108	453	351	413	98
Gomel	139.8	82.2	114	440	364	406	100.4
Vitebsk	117.7	73.1	107	419	323	419	98
Mogilev	112.5	69.6	108	441	320	400	96
Total for BSSR	147.1	--	108	453	363	413	99.9

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CSO: 1824/132

## LIVESTOCK AND FEED PROCUREMENT

### GOSPLAN OFFICIAL ON NEED TO INCREASE MEAT PRODUCTION

Moscow PLANVOYE KHOZYAYSTVO in Russian No 12, Dec 86 pp 26-30

Article by G. Yelistratov, deputy head of a department of USSR Gosplan:  
"Reserves for Increasing the Production of Meat Products"/

Text One of the chief tasks of the current five-year plan is that of accelerating increased meat production. By the end of the five-year plan, the procurements of meat should reach up to 21 million tons in dressed weight. This means that the rate of growth will double compared to the past five-year plan.

Towards this end, use must be made during the initial years of the 12th Five-Year Plan of the available reserves, the entire production potential and the resources of the meat farms. Considerable opportunities are available for accelerating the rate of growth in meat production. It is sufficient to note that large numbers of livestock are presently being maintained on the farms. The ratio is 0.54 standard head per resident. The animals are considerably better than those maintained in previous years, standard facilities are available for their use and more diverse types of feed are at their disposal.

Prior to the commencement of the 12th Five-Year Plan, there were approximately 4,000 large livestock husbandry complexes and more than 1,000 poultry factories in operation. The genetic potential of the livestock, which promotes rapid growth in meat production, increased noticeably. However, statistical data has shown that the created potential is not being used adequately. During the 11th Five-Year Plan, the meat production tasks established by the Food Program were fulfilled only in the Kirghiz SSR, the Armenian SSR and the Azerbaijan SSR. For various reasons, the remaining republics obtained less meat than planned. Livestock productivity on the majority of farms continues to remain low, with the schedules for raising and fattening exceeding the norms to a considerable degree. The principal reason for this situation -- irregular and incomplete development of some of the branch's farms. Some have fine production facilities but are maintaining low productivity livestock in them, while others have not created the conditions required for work by livestock breeders. Still a third group is engaging in production specialization and concentration to an excessive degree without having first created their own feed bases.

As a result, during the 11th Five-Year Plan, just as in previous years, approximately one half of the young cattle stock sold was characterized by low weight conditions. The average weight of one head of cattle sold to the state

does not exceed 360 kilograms. A similar situation prevails in swine husbandry and sheep raising. The principal shortfall in animal husbandry products during the past five-year plan occurred during its initial period -- prior to the adoption of the Food Program. In 1983 the situation improved noticeably, with the increase in meat products reaching 1 million tons during just 1 year alone. Unfortunately, it was not possible during the last years of the five-year plan to maintain such a high rate in increased output. The experience of 1983 revealed convincingly that the negative phenomena common to animal husbandry had been eliminated and that it was now possible to advance branch intensification and to make more complete use of the production potential that had been created. A vast expanse for solving these problems is being created by the new economic mechanism for management in branches of the country's agro-industrial complex, introduced into operations in conformity with the decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Further Improvements in the Economic Mechanism for Management in the country's agro-industrial complex." It intensifies substantially interest in raising production, organizing true cost accounting operations, raising the quality indicators and ensuring efficient production operations. Under the new conditions, it is extremely unprofitable for the kolkhozes and sovkhoses to develop animal husbandry on an extensive basis.

At the present time, intensive technologies for animal husbandry management are being developed and mastered which make it possible to utilize the genetic potential of animals to the maximum possible degree in the interest of obtaining high average daily weight increases and to achieve high weight conditions in the animals within brief periods of time. Thus the average daily weight gains in cattle are increasing by more than twofold, hogs -- by a factor of 1.7-1.9 and sheep -- by a factor of 2.5-3. The periods for the raising and fattening of cattle range from 550-600 days instead of 926, hogs -- 260-280 instead of 425 days and so forth. According to our computations, during the years of the 12th Five-Year Plan the proportion of cattle products obtained using intensive technologies will increase from 10 to 30 percent, hogs -- from 30 to 52, sheep -- from 9 to 24 and poultry -- from 15 to 57 percent.

The plans call first of all for all operational and newly introduced complexes and also a considerable number of kolkhoz and sovkhos farms and inter-farm livestock enterprises in all regions of the country to be converted over to intensive technologies. The largest proportions of such operations will be found in the Baltic republics, the Russian Federation, the Ukraine and in Belorussia.

In essence, the conversion over to intensive technologies constitutes a new stage in the development of animal husbandry, one which is characterized by a higher level of labor and production organization and by the creation of a continuous cycle for the raising and fattening of animals. In addition to establishing proper order on the farms, this will also require considerable improvements in all technological operations. First of all, the intensive technologies require a basically new approach for organizing animal feeding operations. During all of the raising and fattening periods, the animals must be supplied with as much feed as is required for ensuring maximum and economically sound weight increases. According to computations, throughout the entire raising and fattening period using intensive technologies, each head of



cattle requires roughly 30-32 quintals of feed units of nutritionally balanced feed\*.

Feed consumption per quintal of weight increase in cattle amounts to 8-8.5 quintals of feed units and for the raising and fattening of hogs -- 5.5-6.5 quintals. Here great importance is attached to the use of adequate quantities of starter mixed feeds and whole milk substitutes and to improving the quality of the hay and other feeds.

When converting over to intensive technologies for the production of animal husbandry products, a greater role is played by such factors as animal hybridization, farm mechanization and personnel training. In this regard, a large volume of work must be carried out in connection with improving breeding work, modernization and the technical re-equipping of facilities and providing animal husbandry personnel with training in use of all of the technological processes. The conversion over to intensive technologies for animal husbandry requires a definite review of the structure of the area under crops and a strengthening of the feed base. The farms must rid themselves of the vicious practice of feeding their animals from vehicles -- using imported feed which quite often is distributed in violation of the established schedules. In each union republic, kray, oblast and rayon, those farms which have converted over to the use of intensive technologies and the system for supplying them with feed must be defined and assistance must be furnished with regard to supplying them with special mixed feeds, feed additives, feed harvesting and other machines and equipment.

In making use of the existing reserves for raising the output of animal husbandry, an important role must be played by the new organs of administration -- the agro-industrial associations of rayons, oblasts and republics. During the current five-year plan, growth in the production of meat in the Belorussian and Lithuanian SSR's, which have good conditions at their disposal for accomplishing this, must be higher than the average for the country as a whole. These republics, owing to the social division of labor, produce a considerable portion of their meat for delivery to all-union consumers. At the same time, the plans call for meat production to be developed at high rates in such republics as the Kazakh SSR, Uzbek SSR, Georgian SSR and Azerbaijan SSR, where insufficient attention has been given to the development of animal husbandry. Meat production will be increased in all regions of the country without exception and on all categories of farms. However, it is expected that the principal proportion of the increase in meat production (more than 85 percent) will be realized on the farms of kolkhozes and sovkhoses. They must achieve improvements in their quality indicators. According to our computations, the increase in output in 1990 must amount to 20 kilograms on the average for each head of cattle and for hogs -- 15 kilograms. These figures are higher by 18 and 27 percent respectively than the actual results for 1985.

During the 12th Five-Year Plan, reproduction of the herd must be improved, better protection must be provided for offspring and the slaughtering of low-

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\* At the present time, on average for the country as a whole, considerably more feed is being fed per head of cattle during the raising period (926 days), but during a day's time the animals receive less than is required in accordance with the scientific norms.

weight animals must decline. This will make it possible to increase meat production by 12-15 percent. Considerable reserves for growth are to be found in all branches of animal husbandry. However, owing to the limited resources of concentrated feed, higher rates will be found for the production of beef and mutton, with use being made for this purpose of coarse and succulent feeds.

The experience of many kolkhozes and sovkhozes and entire regions of the country underscores the fact that a chief concern in raising the production of beef is that of organizing a unified and continuous cycle for the raising and fattening of young cattle stock, during which sharp changes in the feeding of the animals will not be tolerated during the various periods of their life -- during both the milking and post-milking periods of raising and during subsequent fattening of the animals. This method is being followed by farms in the Estonian and Latvian SSR's, where 150 and 153 kilograms respectively are being obtained for each head of cattle. In the Tajik SSR, the figure is 68 and in the Georgian SSR -- 58 kilograms. The meat productivity of cattle farms in the RSFSR and the Ukraine continues to remain low. The reason for this situation lies in the fact that young cattle stock are not adequately supplied with good hay or special mixed feeds and they are receiving insufficient amounts of whole milk substitute. To a large extent, this is the result of failing to attach proper value to whole milk substitutes and starter mixed feeds and of the vicious practice of achieving an imagined savings in feed through under-feeding of the animals.

All of these shortcomings must be overcome in a decisive manner. At the present time, work is being carried out in all areas aimed at analyzing the development of animal husbandry at kolkhozes, sovkhozes and other state agricultural enterprises and uncovering bottlenecks. Specific measures are being developed for converting animal husbandry over to the intensive path of development.

Specialists attached to USSR Gosagroprom and USSR Gosplan and scientific workers of VASKhNIL /All-Union Academy of Agricultural Sciences imeni V.I. Lenin/ have developed recommendations for the further intensification of animal husbandry. These recommendations have been distributed to the various areas. The implementation of the measures that have been developed must commence during the initial years of the 12th Five-Year Plan. In each oblast, kray and autonomous and union republic, specific farms must be singled out which, over the course of the next few years, will convert over to the raising of animals using intensive technologies. This list of farms will be approved, specific indicators will be established for the productivity levels of the farms, the farms will be provided with the assistance needed for strengthening the feed base, they will be assigned to specific suppliers of special mixed feeds and whole milk substitutes and the work of all elements of the agro-industrial complex will be enlivened to a greater degree. The conditions required for accomplishing this have already been created. It is sufficient to note that in conformity with the decrees of the CPSU Central Committee and the USSR Council of Ministers entitled "Further Improvements in Administration of the Agro-Industrial Complex" and "Further Improvements in the Economic Mechanism for Management Within the Country's Agro-industrial Complex," the kolkhozes, sovkhozes and organs of APK administration have been presented with broad opportunities for solving all economic problems and an expansion has taken place in their rights and independence. Stable plans for grain procurements have been

approved for all years of the 12th Five-Year Plan and once they have been fulfilled the kolkhozes and sovkhoses are authorized to use the remaining grain at their own discretion. At the same time, the republic and oblast organs will be permitted to form their own programs for the production of mixed feeds, using for this purpose raw materials obtained from state resources and also from their own fields. This will make it possible to produce those types of mixed feeds which are required for specific farms and it will also encourage the production not only of grain as the principal component for mixed feeds but also various types of protein raw materials. Inter-republic and inter-oblast shipments of oilcake, oil-seed meal, meat-and-bone meal and nutrient yeasts will decline. The larger portion of these high protein feeds will remain in the production areas. Thus, a mechanism is being created for raising the interest of kolkhozes, sovkhoses, rayons, oblasts and republics in developing their own production operations.

An expansion is taking place in the opportunities available for producing the required feeds at industrial enterprises of the Gosagroprom /State Agro-Industrial Committee/ -- meat combines and dairy combines. The experience of Belorussia and other union republics serves to underscore the high effectiveness of the starter mixed feed and regenerated milk being produced.

In addition to public animal husbandry operations, an important role is being played by increased meat production on farms of the population.

In conformity with the above-mentioned decree "Further Improvements in the Economic Mechanism for Management Within the Country's Agro-industrial Complex," considerably more attention is being given to the private plots of citizens. In particular, it is noted in this decree that the private plots, as a component part of socialist agricultural production, rely upon the kolkhozes and sovkhoses for assistance and must satisfy more completely the requirements of rural residents for meat, milk, eggs, potatoes, vegetables, fruit and other food products, with excess products being sold through the cooperative trade or at the kolkhoz market. During the years of the 11th Five-Year Plan, private plot production on the average accounted for 29 percent of the country's overall production. During the current five-year plan, owing to accelerated growth in meat production in the public economy, the proportion of meat being produced on farms of the population will decline somewhat and yet its absolute volumes must increase roughly by 8-9 percent.

Considerable measures have been undertaken in recent years aimed at raising the interest of citizens in developing the private economy. The private plots are being provided with assistance in acquiring livestock and poultry, more concentrated feed is being sold to them from the state resources and pasture and haying lands are being made available for their use. The kolkhozes and sovkhoses have expanded considerably the contractual form for collaborating with farms of the population and this is raising the prestige of the private plots and the interest of kolkhozes and sovkhoses in developing them.

The sale to the population, by kolkhozes, sovkhoses and other enterprises of the agro-industrial complex, of grain forage, coarse and succulent feeds, seed, planting stock and young animals and poultry is being expanded and greater assistance is being furnished in the form of veterinary services. The task has been assigned of completely satisfying the population's requirements for young

swine and poultry stock over the next two years. These measures will have a positive effect on the development of the private plots of citizens and in raising the role they play in supplying the population with food products.

In the production of meat and other products, considerable importance is being attached to the subsidiary farms of enterprises, organizations and institutes. At the present time, their number has increased considerably and the process of creating subsidiary farms is gathering momentum. They are promoting an increase in the production of those agricultural products needed for improving public catering services in the dining halls which service the workers of these enterprises, organizations, institutes, medical and childrens' institutes, young pioneer camps, bases and resorts and also for the sale of food products to workers of corresponding enterprises, organizations and institutes. Many examples could be cited illustrating the effective work being performed by these farms. Taking into account their positive experience during the 12th Five-Year Plan, the production and sale of meat and milk at subsidiary farms must be expanded substantially and new ones should be created in those areas where a need for such farms exists.

Data supplied by the USSR TsSU [Central Statistical Administration] on operational results for the first 9 months of this year and an analysis of monthly and quarterly reports on the status of animal husbandry operations reveal that positive changes have taken place in animal husbandry throughout the country in 1986. Increases have taken place in the production and procurements of all types of animal husbandry products. All of the union republics (with the exception of the Uzbek SSR) possess real opportunities not only for fulfilling but also for over-fulfilling the procurement plans for livestock and poultry.

One of the chief tasks of agricultural workers is that of ensuring progressive development for animal husbandry. The complete solving of this task requires more complete utilization of all available reserves, of which there are many in agriculture. Importance is attached to ensuring that they are utilized quickly and effectively.

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NEW METHODS OF MANAGEMENT IN OIL INDUSTRY

Moscow NEFTYANOYE KHOZYAYSTVO in Russian No 12, Dec 86 pp 3-7

[Article by S. M. Levin (VNIIOENG [All-Union Scientific-Research Institute for Organizing Control and the Economic Affairs of the Oil and Gas Industry]): "New Conditions for Management in the Oil Industry"]

[Text] It is planned that in 1987 all enterprises and organizations of the oil-recovery complex--industrial and drilling organizations, trunk pipeline transport, and the processing and computing service--will take steps to improve the organization of planning and incentives, to raise the role and the responsibility and initiative of laboring collectives in solving problems of work and control, and to develop and implement plans for improving workers' living and working conditions.

Taking these steps on the basis of a radical restructuring of the economic mechanism, the introduction of a system of stable economic standards, and intensification of the influence of cost accounting on development of the creative initiative of laboring collectives should enable the branch to convert to the new conditions for management. An important element here is the wide application of economic methods of control that will enable the potential of enterprise collectives to adopt optimal management decisions to be used fully with a view to achieving high final production results and to increasing production efficiency.

For this purpose, the branch's economic mechanism is to be completely restructured and the rights of laboring collectives are to be raised and their responsibility to be increased.

The following is contemplated for the radical restructuring of planning.

1. A substantial reduction in the number of indicators approved for the association (15 instead of several dozen) in five-year and annual plans. In this case, the association's activity will be evaluated under the new management conditions in accordance with:

the realization of output in accordance with contracts that have been concluded;

the recovery (or delivery) of crude (and gas condensate):



the development of science and technology;

the introduction into operation of fixed capital, production capacity (including wells), and housing and other facilities for social purposes; and

total profit from all types of activity.

2. A fundamental expansion of the use of economic standards in planning the association's activities.

During the five-year plan, associations, enterprises and organizations are to approve the following economic standards for:

increases (or reductions) of the wage fund for industrial production personnel for increasing (or reducing) production in the year's plan in comparison with the five-year plan goal for the corresponding year;

formation of the wage fund and the personnel makeup of associations and organizations for contract drilling and for trunk oil-pipeline transport;

the wage fund for supervisors, engineers, technicians and other white-collar personnel;

the wage fund for designers, production engineers and scientific workers;

formation of the production-development fund;

deductions made into the common fund for the development of science and technology;

formation of the fund for social and cultural measures and for housing construction (FSKM i ZhS);

formation of the material incentive fund (FMP); and

payment for producer goods and deductions from balance-sheet profit into the state budget (under the annual plan).

Minefteprom [Ministry of Petroleum Industry] develops economic standards within the control figures and delivers them to the associations before preparation of the five-year plan starts. The standards set in the five-year plan are not subject to change or reapproval.

Based upon the approved indicators, ceilings and economic standards, which are aimed at reinforcing the dependence of wages upon the production collectives' final work results, the branch's associations independently develop plans for economic and social development and financial plans, providing, in so doing, for the effective use of material, labor and financial resources.

An intensification of economic methods of control and the wide use of economic standards under the new system of management increases directly the motivation of oil-industry working collectives to increase production efficiency.

Thus, use of the standards method for planning and forming the net-wage fund (the basic wage fund for industrial and drilling enterprises and pipeline-transport organizations and the material incentives fund for the production association as a whole), in conjunction with the granting to associations of the right to determine planned worker manning independently, not only motivates enterprises to reduce labor expenditures but also to intensify dependence of the size of the net wage fund upon optimal use of the oil region's recovery potential.

The use of advanced experience in applying progressive standards to the system of management that operates within production should help in executing the set of measures aimed at intensifying cost accounting and the influence of its forms and methods on increasing the labor activity of department, section and brigade collectives and each worker toward the achievement of high final results.

Also being expanded are the rights of the branch's associations provide for their technical and social development. Thus, under the new management conditions, the rights of enterprises to form and use the production development fund will be increased. The amounts of this fund are set in the plan and are established in accordance with stable standards that are approved by five-year plan year for growing amounts, by sending into this fund a rising share of amortization deductions for renovation. The resources of the production-development fund that associations accumulate are sent independently by them into the financing of capital investment that is associated with reequipping, rebuilding and expanding production facilities and with creating new capacity for the recovery and transport of crude. The associations are granted the right to allocate additional funds to the reequipping of fixed capital above the centralized capital investment that has been called for, through a portion of the amortization deductions that are intended for overhaul.

The fund for social and cultural measures and housing construction is formed within the branch's associations in accordance with the stable standards established by five-year plan year as a percent of the material-incentive fund. Under the branch standard, the FSKM i ZhS equals 50 percent of the size of the FMP, and this ratio is differentiated for the associations, with the concurrence of the central committee of the branch's trade union, as a function of an enterprise's requirements for the construction of social and cultural facilities and also for expenditures on their upkeep. It is recommended that associations, when developing budget estimates for using this fund, allocate 50 percent of the funds to the construction of housing, children's and school institutions, and facilities for public-health, social and cultural purposes.

Moreover, they will be authorized independently to transfer resources of the FSKM i ZhS to the ispolkoms of local soviets of people's deputies and to other organizations for the construction of facilities for nonproduction purposes, primarily housing, in the shared-participation procedure.

The rights of the association to use incentive funds also are being expanded. It can transfer, with the concurrence of the collective, a portion of the FMP, the FSKM i ZhS, and the production-development fund to cooperating enterprises, to construction, construction-overhaul, transport and geophysical

organizations and to the associations' URS's [workers' supply administrations] and ORS's [workers' supply departments] for incentives for solving complicated operating problems, for fulfilling especially important production tasks, for accelerating the performance of the work, for reequipping fixed capital, and for building facilities for nonproduction purposes.

The rights of the branch's associations and enterprises to use the wage fund that is formed in accordance with the established indicators and standards have been greatly extended. Thus, association and enterprise supervisors will be granted the right, with the concurrence of trade-union committees, to introduce differentiated allowances and wage increases to blue-collar workers and specialists for the mastery and the combining of trades and to expand the areas of service. Oil-industry associations will be able to establish reserves for the wage fund in amounts of up to 1 percent.

The unused basic wage fund of drilling and pipeline-transport organizations will be credited, where plan tasks as to number of wells whose construction has been completed and the delivery of crude to customers are met, to the material-incentive fund through the profit that remains at the disposal of the association (similar to the procedure in effect for industrial enterprises).

At the same time, the associations' responsibility for using the basic wage fund will be raised. Where wage fund has been overspent, not only the wage fund saved since the start of the year but also the portion previously credited to the FMP, and even the basic part of the FMP, will be used to cover it.

The material incentive fund for the next year will be formed by the branch's associations in accordance with the stable norms established by the five-year plan. Association incentive funds will be formed in accordance with the branch's system, which calls for an increase in the motivation of labor collectives for the final results of the branch's work--the recovery of oil and gas. This is achieved by the forming of the FMP in the five-year plan and in annual plans under the standards (per-ton rates) for the amount of oil, gas condensate and casing-head and natural gas recovered. The per-ton rates are established under the five-year plan differentially for associations by year, in kopecks per ton of crude, condensate and gas (1,000 m<sup>3</sup> of gas is equated to 1 ton of crude) recovered in accordance with the recovery approved by the five-year plan for the corresponding year.

The use of per-ton rates for forming the incentive fund stimulates all enterprises that are part of the oil-recovery production administration (except for construction, geophysical, design and scientific-research organizations, and also agricultural enterprises, trade organizations and public eating facilities, whose economic incentive funds are formed under special methodologies). The use of this system for creating incentive funds when developing the plan and carrying it out provides additional motivation for the collective to use the optimally progressive organizational structure of the production association and to reduce labor expenditure throughout the whole oil-recovery operations chain.

In converting the branch's associations to the new management system, the following will be introduced:

as an antiexpenditure mechanism, an incentive for savings and thriftiness by deducting into the material-incentive fund 10 kopecks from each ruble of savings from reductions in the planned level of expenditures per 1 ruble of commodity output (this economic mechanism operates also where there is overconsumption, but in this case the material-incentive fund is reduced accordingly); and

an incentive for raising quality in the treatment of crude by deducting into the material incentive fund up to 50 percent of above-plan profit obtained by marking up the price for crude delivered versus the planned rebates or markups to the wholesale price.

In order to stimulate a saving of the crude expended on in-house needs, the amount thereof recovered is increased (or reduced) when figuring deductions into the association's material incentive fund by the amount of savings (or by the amount of overconsumption) of crude that has been expended on production-operations needs, or of losses, in comparison with the established standards.

In order to create an increased material motivation for association collectives to make optimal use of their recovery potential, taking into account the great benefit from the national economy's use of each ton of crude recovered above the plan, the production association's material-incentive fund is allocated 5 rubles per ton of above-plan crude.

Within the per-ton rates approved for oil-recovery production associations, an intrabranh system is being established that specifies for their enterprises a separate credit for the material incentive fund:

for industrial enterprises (and the whole complex of nonindustrial servicing activities)--through the association's profit for industrial activity; and

for contracting drilling organizations--through the profit from contract drilling.

The material incentive fund for contract-drilling organizations is formed as a function of the number of wells whose construction has been completed and which have been turned over to the client and of the plan standard, which has been established on the basis of five-year plan tasks per well whose construction has been completed and which has been turned over to the client. Additional deductions for wells turned over above the plan are made that consider the increase (or decrease) in well-days that the client has operated the wells turned over to him versus the planned schedule.

A single material-incentive fund is being created for oil-industry associations. It includes, aside from the FMP, resources made available under other special bonus-awarding systems:

deductions into the FMP for the creation, production-mastery and introduction of new equipment;

resources for awarding bonuses for assistance to inventiveness and rationalization; and



bonuses for delivering output for export, the production of consumer goods from production waste, the introduction into operation of facilities under construction, and an improvement in output quality.

The common material-incentive fund is expended in accordance with the budget estimate, which is discussed in the labor collective, and is approved by joint decision of the administration and the association's trade-union committee.

A system of bonus-awarding intended as an incentive for the final results of an activity is being developed and used by enterprises. It takes into account the indicators for evaluating the activity of associations under the new management conditions. In so doing, the incentive role of bonuses for fulfilling plans and contractual commitments for output deliveries, for raising the technical level and the quality of output, for reducing the prime cost for producing output, and for savings of all types of material and of labor resources is growing.

In order to provide for stable activity in the branch under the new management conditions, Minnefteprom plans to form a centralized fund of financial resources in accordance with stable norms.

Its funds will be directed toward:

the creation of a single fund for developing science and technology;

the forming of reserves for the material-incentive fund and the fund for social and cultural measures and housing construction;

the extension of temporary financial aid to associations, enterprises and organizations; and

the financing of losses and other plan expenditures of losing and poorly profitable enterprises and organizations.

Standards for deductions from balance-sheet profit for forming the financial-resources fund, which is centralized in Minnefteprom, are approved for associations, enterprises and organizations in five-year plans. Associations will be authorized to form a financial reserve in the amount of up to 5 percent of the standard for their own working capital through the profit remaining at their disposal.

Under the new conditions for management, oil-industry associations execute settlements with the state budget in accordance with approved standards from the total of balance-sheet profit from industrial activity, contract drilling and the data-processing and computing service.

The economic mechanism that is aimed at eliminating above-standard reserves is being intensified by the introduction of an additional payment into the budget for the cost of above-standard reserves of commodity and material valuables and uninstalled equipment not financed by the bank.

The new management system in the oil industry embraces all aspects of comprehensive improvement of the economic mechanism: the organizational structure,



planning, financing, supply, price-setting and incentives. Acceleration of the rate of increase in the effectiveness of oil-recovery operations depends upon the successful and timely execution of measures for the comprehensive application of all elements of the new management mechanism to enterprises. In order to achieve this, a high degree of activeness of organizational and economic work, persistent searching for reserves for increasing oil recovery, improvement in the use of production capacity, and a reduction of labor and material expenditures should be provided for at all levels of the branch's administration. Each oil-industry worker must take an active part in solving the indicated problem.

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## FIRST HORIZONTAL WELL IN W. SIBERIA DRILLED

Moscow NEFTYANOYE KHOZYAYSTVO in Russian No 12, Dec 86 pp 8-12

[Article by R. K. Yevropeytsev, G. D. Tarasov, A. F. Kononov and V. S. Koshukov (Yuganskneftegaz): "Construction in West Siberia of the First Horizontal Well"]

[Text] Sinking of the 3,300-m experimental hole No 578, which showed a 35-m productive formation in a 370-meter interval, was completed in February 1986 by the PO Yuganskneftegaz [Yugansk Oil and Gas Production Association] at the Salym field. The work was performed within the framework of the Comprehensive Program of Minnefteprom [Ministry of Petroleum Industry] on Solving the Problem, "Creation of the Theory and Technology for Developing Oil Deposits of the Bazhenovskaya Suite," and of the GKNT [State Committee for Science and Technology] Plan for 1981-1985 for the Creation of New Equipment and Technology.

The basic task of the experimental drilling came down to a study of the possibility of finding an oil deposit in the Bazhenovskaya suite through a horizontal bore and of obtaining baseline data for developing the industrial technology for the construction of such wells, for testing the equipment, and for refining the demands made on it. Finding the recovery potential of horizontal wells was not specified as the basic task at this stage of the operation, since that can be resolved only after the construction and test operation of several such wells at the field. However, the indicated task was urgent, since wide prospects for recovering oil are associated with the Bazhenovskaya suite. Meanwhile, the results of realization of these prospects still remain unsatisfied because of the inadequate degree of study of the deposit and of the productive reservoirs, which are unusual not only for the Soviet Union but also for the whole world.

Distinctive features of Bazhenovskaya suite reservoirs are their confinement to clayey rocks of the porous-fracture and cavernous-fracture types and the nonuniform lenticular distribution of the productive formation's fracture zones. The pressure of the formation fluids was anomalously high, being 34.3-44.1 MPa, which corresponds to pressure gradients of 0.0123-0.0157 MPa/meter. Along with the presence of AVPD [anomalously high formation pressure] zones in the Bazhenovskaya suite, anomalously high formation temperatures were noted--135 degrees C. This occasions an extremeness of working conditions for the bottom-hole equipment for drilling and for apparatus for geophysical field studies.

The task of determining an optimal method for finding the deposit required its own solution, and here, undoubtedly, an answer should be obtained to the question of the effectiveness of horizontal bores. Hole No 578 is only the first step in this direction.

Taking into account the geological conditions and technical possibilities and the fact that it was proposed that the well be drilled from a well-cluster platforms from which seven wells previously had been drilled through (figure 1), a flat-interval profile was planned for it (figure 2), the horizontal offset of the bore to total 800 meters and the horizontal bore within the productive formation to total 400 meters in length. Based upon peculiarities of the deposit's structure, it was planned to drill-in the bore at small angles of inclination in relation to the formation, and after reaching the floor of the Bazhenovskaya suite, to guide the bore directly along the KS-1 productive layer, which was 1.5-2.0 meters thick.

The well's designed structure was as follows: a surface casing 245 mm in diameter; depth of run-in 550 meters, rise of the cement--to the wellhead, and bore diameter 295.3 mm; production string diameter 168 mm; depth of run-in to the roof of the Bazhenovskaya suite (2,900 meters), height of rise of the cement--to the shoe of the surface casing, bore diameter 215.9; filter-liner diameter 114 mm; run-in interval--2,880-3,300 mm, uncemented, with a bore diameter of 146 mm.

Figure 1. Section of the Field Where Horizontal Hole No 578 Is Located.

1. Cluster-well platform 113.
- 2 and 3. Trajectory of the wells--the general trajectory and the trajectory within the productive formation, respectively.

Design of the well was based upon what was standard for the field, providing it with lightness of weight and a potential for using the drilling equipment and casing string that are employed in the region. However, this required that certain difficulties in preparing for drilling, caused by the absence of serially produced tools for horizontal small-diameter drilling, be overcome.

A clayey solution on a water base was used for flushing the well, and its parameters and chemical treatment corresponded with the rules that had been established for the Salym field. In drilling the main bore a drilling solution of 1,060 to 1,200 kg/m<sup>3</sup> density was planned for the production string, and the productive formation was to be exposed with the use of a mud with a density of 1,400 kg/m<sup>3</sup>.

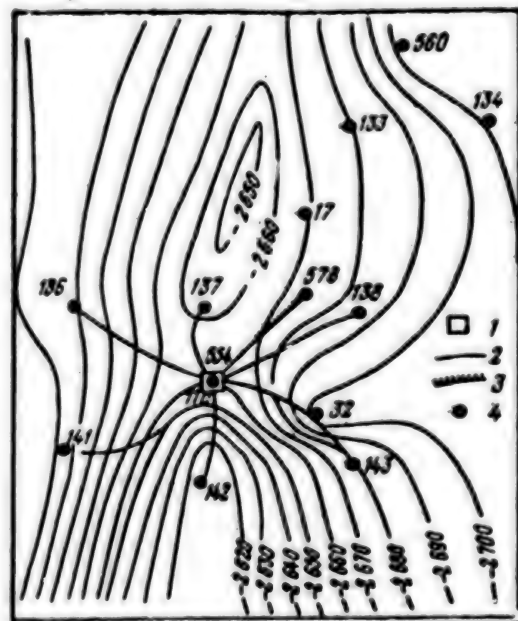


Figure 2. Designed Profile of Horizontal Hole 578 (H Is the Depth along the Vertical and l Is the Horizontal Displacement).

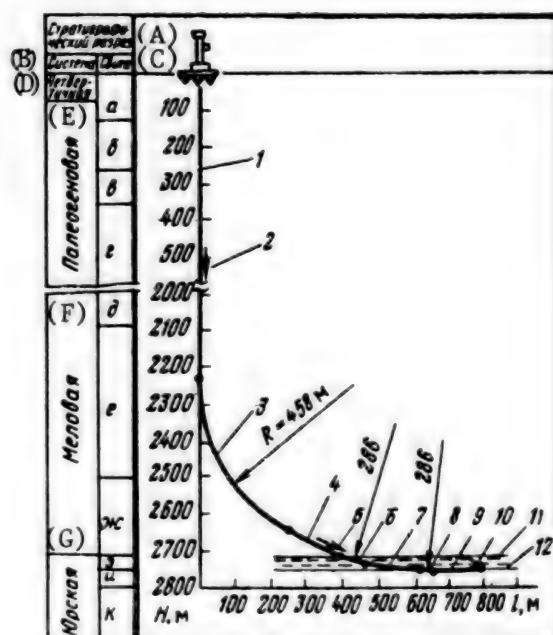
Suites:

- a. Novomikhaylovskaya.
- б. Atlymskaya.
- в. Cheganskaya.
- г. Lyulinvorskaya.
- д. Alymskaya.
- е. Vartovskaya.
- ж. Megion.
- з. Bazhenovskaya.
- и. Abalaksкая.
- к. Tyumen.

- 1. Vertical section of the bore.
- 2. Shoe of the surface casing string.
- 3, 6 and 8. Section of increase of the vertical deviation angle to 63, 83 and 89 degrees, respectively.
- 4, 7 and 9. Sections of vertical-angle stabilization.
- 5. Shoe of the production string.
- 10. Shoe of the filter-liner.
- 11 and 12. The roof and floor, respectively, of the production formation.

- A. Stratigraphic cross-section.
- B. System.
- C. Suite.
- D. Quaternary.

- E. Paleogene.
- F. Cretaceous.
- G. Jurassic.



The drilling system was based upon the use of a Uralmash-3000 EUK tool for cluster-well drilling and a complex of submersible and surface equipment for electrical drilling, to include electric drills 240, 190 and 127 mm in diameter, which correspond to reduction-gear inserts with gear ratios of 2,3 and 5, telemetric systems for real-time monitoring of the parameters of the well's course and for determining the whipstock's position during drilling, arrangements for monitoring insulation of the electric-drill's current supply, mechanisms for controlling the well's trajectory, steel and light-alloy drill pipe equipped with sectioned two-wire current supply in two versions (ordinary and heat-resistant for drilling in the Bazhenovskaya suite), the TMTB 630/6 power transformer, the UZEB8039A2U2 electric-drill control set, and so on.

In order to monitor the drilling, an automatic ASPB-type unit was designed which had a mud-logging unit. The driller controlled the drilling, guided by readings of the hydraulic weight of the drill string, a reading of the active power on the electric drill's shaft, ammeters, kilowattmeters, voltmeters, electric-drilling control sets, hydraulic manometers, and a surface control for the telemetry system.

In order to conduct geophysical field research in the gently sloping portion of the bore, special probes for radioactive logging and inclinometers designed by Yuganskneftegeofizika [Yugansk Trust for Oil and Gas Geophysical Studies] were used, as were STE GSP 127 probes designed by SKTBPE [Special Industrial-Design Office for the Design of Electrical Equipment] of the VNPO [Science and Production Association] Potential for electrical monoelectrode logging. These probes (later called pipe probes) were lowered into the well on drill pipe for electric drilling, and in so doing the cable sections that supply the current for the electric drill provided the electrical channel for communications with the bottom hole.

Hole No 578 was introduced to drilling 15 June 1985. The surface casing, 245 mm in diameter, was run-in to a depth of 554 meters. After the installation and testing of the antiblowout equipment was completed, drilling of the hole continued. The bore was driven vertically to a depth of 2,172 meters, and the angle of inclination did not exceed 1.75 degrees in the 0-2,172 meter interval. Further drilling was done with increase in the angle of inclination on the designed azimuth of 26 degrees. On reaching the depth of 2,312 meters the angle of inclination was 20.5 degrees. As a result of the fact that the pace of its growth, which was obtained by means of the whipstock being used, with a skewing angle of the axis of 1.5 degrees, exceeded the computed angle somewhat, the section of the bore in the 2,312-2,431 meter interval was passed, with the angle of inclination stabilized in order to preserve the designed position of the point where the bore encountered the Bazhenovskaya suite roof.

Drilling was continued in the 2,431-2,721 meter interval with increase in the angle of inclination. It reached 67 degrees, enabling the bore to be injected into the Bazhenovskaya suite's thickness in the horizontal position. Difficulties connected with transmitting the axial loading onto the drill bit were noted during drilling of the indicated section. In so doing, the effect of the drill assembly sticking to the well's permeable walls, under the influence of differential pressure, appeared.

On reaching a hole depth of 2,637 meters, geophysical studies were made in the open bore by lowering instruments on a logging cable. The instruments went down to a depth of 2,623 meters, the angle of inclination here being 53 degrees. The section of the bore in the 2,721-2,870 meter interval was passed with the angle of inclination stabilized. In this section, penetration was complicated by the presence of a freezing-hazard situation in a zone of poorly permeable reservoirs of the Achimovskaya member of the Megion suite, which led to the drill string freezing three times. The freezes were eliminated without special difficulties by drill-string reciprocation.

The terminal geophysical field studies were conducted by means of the STE GSP 127 type drill-stem logging probe. They showed that, in order to reach the Bazhenovskaya suite's roof, the well had to be deepened by another 10-15 meters.

Meanwhile, penetration of the hole could not be renewed, since complications had started, caused by heaving of the clayey Alymskaya suite rocks, and also of the Achimovskaya and Podachimovskaya members, which were bedded in the lower portion of the Megion suite. Drill-string drag and jamming of the drilling tool during round-trip operations and losses of circulation began



to be noted, necessitating multiple reamings of the hole. During one reaming the drilling assembly broke and part of it remained in the hole at a depth of 2,850 meters.

In the situation that prevailed it was decided to eliminate the accident by drilling a second bore. A cement plug was installed in the hole at the 2,850-2,660 meter interval. The bores were reconnoitered at a depth of 2,750 meters with operation of a 1.5-degree whipstock, which was oriented to a reduction of the angle of inclination. During later drilling, in order to prevent meetings of the bores, the azimuth of the second bore was shifted by several degrees in relation to the first, after which penetration was executed with an increase in the angle of inclination.

When the hole's bottom reached a depth of 2,898 meters, complications similar to those noted in the first bore were noted in the second. The bore's condition was improved by increasing the drilling mud's density to  $1,280 \text{ kg/m}^3$  (the complications occurred when the mud's density was  $1,190 \text{ kg/m}^3$ ), by maintaining filtration within the range of  $4\text{--}5 \text{ cm}^3/30 \text{ minutes}$ , and by cleaning the cavities of sludge by repeated reamings and flushings. After this the hole was drilled down to the roof of the Bazhenovskaya suite and terminal logging was performed by means of the STE GSP 127 probe. The inclination angle at the final depth of 2,960 meters was 78 percent and the total horizontal displacement of the bore was 484 meters.

Run-in and cementing of the production string went successfully. After installation and testing of the blowout-prevention equipment, the work was converted to drilling by an electrical unit 127 mm in diameter, a cement sleeve was drilled out, a check was made of the integrity of seal of the production string's cement ring, and the drilling mud was weighted with barite to a density of  $1,400 \text{ kg/m}^3$ . Prior to touchdown of the production string shoe, the drill-stem logging probes of Yuganskneftegeofizika design were tested twice.

On 17 Nov 85 sinking of the horizontal bore of small diameter was undertaken. In order to establish the horizontal position in the 2,963-2,993 meter interval, drilling was done with a whipstock and the angle of inclination was increased from 78 to 88 degrees. Drilling continued to a depth of 3,096 meters, with stabilization of the inclination angle. At this stage of penetration by the horizontal bore, the operating effectiveness of the drilling configuration with whipstock and stabilizer, which were used at this diameter for the first time, was determined, it was established that the drilling operations were proceeding normally, with the bore's condition being maintained stably, and the possibility of using drill-stem logging probes of Yuganskneftegeofizika design for performing geophysical field research in the Bazhenovskaya suite and of mastering the coring technology, was confirmed.

The pace of opening up the formation along its thickness at an angle of inclination of 86-88 degrees proved to be inadequate, so a decision was made to drill without stabilizers in order to speed up the pace. As a result, the inclination angle was reduced to 81 degrees at a depth of 3,150 meters. Drilling continued to a depth of 3,304 meters with the use of a KNBK [down-hole drill-stem assembly] that stabilized the inclination angle. No deviations of the drilling process from the normal were observed down to the

foot of the Bazhenovskaya suite. Readings of the STE 127 U3 telemetric system, data of the measurement of the natural radioactivity of the drilling sludge, coring, and logging with drill-stem probes were used to control the position of the bore relative to the cross-section that had been exposed.

While doing slotting at the 3,296-3,304 meter interval, absorption of the drilling mud, whose density was  $1,380 \text{ kg/m}^3$ , was noted. The hydraulic equilibrium in the well was reestablished by reducing drilling-mud density to  $1,280 \text{ kg/m}^3$ .

The well bore was troubled by rock debris during the absorption, because of which its passability had to be restored by means of running in a drilling tool and by flushing and reaming. Ten days were spent eliminating the problem.

After the bore was restored to a satisfactory state, a core was taken that enabled final link-up of the bore with the geological cross-section that had been opened up and assurance that the well had completely intersected the Bazhenovskaya suite and had reached the foot of the KS-1 layer, which was characterized by strong fracturing and crumpling of the rocks. The danger of new hazards arising, since the horizontal bore was fairly long, forced drilling along the KS-1 layer to be abandoned and limited penetration of the bore to a depth of 3,330 meters. Total horizontal displacement of the bore at this depth was 850 meters, and length of the horizontal section in the productive formation was 370 meters. Drilling of the last 10 meters was accompanied by caving, so the portion drilled through had to be reamed repeatedly.

During the last drilling stage, after the KS-1 layer had been opened up and drilling-mud density had been reduced to  $1,280 \text{ kg/m}^3$ , weak oil shows and an increase in the intensity of gas shown were noted which, as a whole, were insignificant. On 10 Feb 86, after successful conduct of a set of final geophysical field studies and run-in of the filter liner, operations on the erection of the horizontal well were ended.

#### Conclusions

1. It was possible to construct horizontal wells at the Bazhenovskaya suite's Salym field by means of electrical drilling equipment.
2. The experience gained can be used in developing the equipment, technology and organization for industrial-test drilling of wells with horizontal termination in West Siberia.
3. Industrial-test drilling can be promoted only if equipment appropriate for drilling and for geophysical field research is produced serially.
4. More favorable organizational forms for horizontal drilling within the framework of specialized enterprises or science-and-production associations must be sought.
5. The drilling of a horizontal hole under the complicated conditions of the Salym field indicate a potential for using electrical drilling

equipment for the construction of slanted directional and horizontal holes of small diameter (particularly in West Siberia) on cluster-well foundations, enabling material and power costs for erecting wells and for developing oil-fields to be reduced considerably.

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## LABOR

### NEW WAGE SYSTEM IN ESTONIAN ENTERPRISES EXAMINED

Moscow PRAVDA in Russian 5 Jan 87 p 2

[Article by Pravda correspondent V. Shirokov: "Wages are to be Earned." First three paragraphs are source introduction.]

[Text] In Estonia, the start of the new year saw the beginning of a changeover to new conditions for paying for work in all sectors of the national economy, including industry, construction, transportation, communications and state farms -- and also in certain nonproduction spheres: material and technical supply, sales and procurement, housing and municipal economy, everyday services, and health services institutions. A "territorial model" is being developed on the initiative of the Estonian CP Central Committee Buro.

Increases in wage rates and salary scales will take place on a new basis -- on the basis of funds which are earned by the labor collectives themselves. Such a territorial experiment, when the all enterprises are being shifted to the new pay method irrespective of their departmental subordination, is being carried out for the first time in our country. It involves 500,000 out the 811,000 persons employed in social production within the republic.

What will this important political and social measure produce?

"At first you need to make a 'mess' of the plan," well-wishers advised the new director of the Volta plant when he came to the enterprise a year ago. "As a novice manager you surely won't be punished. On the other hand, we will build up a reserve on account of this and then, you see, we will correct the situation..."

In fact, things did not go very well at Volta. There was no meeting, plenum, or gathering of activists in the city where the enterprise was not mentioned among those that were lagging behind. Reconstruction dragged out and it accumulated 800,000 rubles worth of uninstalled equipment alone. There was an endless turnover of management personnel and the skilled workers were leaving because they saw no future there.

Is this, really, a mess-up in the plan? But Vladimir Aleksandrovich understood that this is not the solution: you let down hundreds of customers. Besides this, he was convinced that the collective also had the capability of

overcoming its backwardness without resorting to special tricks. Temporary indulgence only suppresses the "illness"...

Together with the secretary of the party committee, V. Antonov, the directors of the plant went "to the people". There were meetings with shop collectives, people's controllers, propagandists, trade union activists, the council of brigade chiefs, and young specialists. They succeeded in "shaking loose" people's energy, in setting about establishing order and labor discipline, and in strengthening requirements for strict observance of production technologies.

The meetings at Volta showed that they still had only scratched the surface in making use of reserves. The collective still has a long way to go to match the leading ones. However, it is already coping with its plan tasks, although the plan for contracted deliveries is only 97.3 percent fulfilled. This means that it is necessary to go farther, to uncover its deep potentials. And here, V. Aleksandrov is convinced, the changeover to the new wage system can become a lever to move the collective in the direction of new quests and bold actions.

He's right. Reliance on the collective is, in fact, the only possibility in such an important and new step as introducing increased rates and scales. In the accounts of a large economic system, the human factor is the decisive "sum". Only the collective itself can seek out and accumulate the funds needed for the transition -- there will be no government subsidies. It is namely in the shops, the brigades, and the enterprises that the success of the matter will be decided, not in the ministries or their central directorates.

It must be noted that Estonia's industrial and agricultural production growth rates declined during the last five-year plan. This could no longer be tolerated. A new impulse for acceleration was needed. It also must be admitted that the so-called "deduction system" still reigns at many enterprises. Frequently, highly skilled work is not receiving its just reward and everyone is being dragged down to an average "common denominator." The relative share of wage rate in the pay of workers has sunk to 50 percent, and sometimes even lower. And bonuses and all possible kinds of added payments have frequently been transformed into a pay supplement which bears no relationship to work contribution. Some people are used to getting high pay even without working particularly hard. For example, in the republic last year, for every percentage point of growth in labor productivity, wages increased by 1.21 percent.

The territorial experiment being conducted in Estonia is called upon to end this inertia. It envisages improving the structure of wages, eliminating unjustified pay supplements and additions, and reviewing output norms. The latter is particularly important. Many norms have either become outdated, or have been set by experimental statistical methods which lack scientific foundation. This, incidentally, is evidenced by the average percentage of output norm fulfillment: in 1984-1985 this came to 135.3 percent.

From now on, the norm is to become, in fact, a measure of work, and not a means for extorting high wages without a corresponding return in labor. And



the review of norms is also to be carried out by the labor collectives themselves, as it is otherwise impossible to accumulate the funds necessary for the transition. Many people have growing doubts here, as witnessed by my conversation with a senior skilled worker at Volta. He said: "Of course, I can live with it, but I do have some reservations about how it is set up, that they can just as well cut off part of my wages later..."

A response to these doubts was contained in the address by the first secretary of the Estonian CP Central Committee, K. G. Vayno, at a conference of the republic's party and economic activists.

"Can the worker be certain that if he doubles his production he will also receive corresponding pay? Won't his norm be immediately reviewed, as happened up until recent times? No kind of artificial restrictions or pay 'cuts' should occur now. The principle underlying the new system of norm-setting is that the more you have worked, the more you will receive. All norms are being set for a short period, at the time when working places are certified, and this can be done only twice during a five-year period. Norms will be reviewed only in conjunction with changes in equipment and technology or a basic improvement in the organization of work. And norms will remain unchanged in the intervals between certifications."

The certification of working places, accompanied by a review of norms, is a decisive condition for accumulating the funds necessary for a transition to the new pay system.

"Earlier, we also generally carried out certifications," the director of Volta, V. Aleksandrov, said to me. "But this resembled more a public review of reserves. We are now carrying it out in a new way. In some places, our norms were set 5 or 10 years ago by means of experiment, at the time when equipment was being assimilated. The funds which will be made available from this will remain in the collective itself and will be used to provide incentives to its workers. This means that the people will themselves become interested in this review."

The review of norms is, of course, only one part of a general complex of measures. During the time of my meetings with workers of the Estonian SSR State Committee for Labor, they stressed that a no less important component of these measures is the technical retooling of enterprises, their over-all mechanization and automation, and ridding them of heavy manual labor. Besides this, there is the use of progressive forms for organizing labor, most importantly of the collective contract and economic accountability in all production elements, and the expansion of service zones. A collective, working on contract, decides itself how many and what kinds of people are needed to fulfill its assignment on time. In the new conditions, the idle worker and the absentee will become a disadvantage for the entire brigade. It will become impermissible for the honest worker to keep him on as an expensive extravagance.

Wage fund savings which have been obtained as a result of reducing the number of workers will remain at the disposal of the collective and will go toward increasing wages and salaries. And it is entirely possible to carry out the

same, and even an increased volume of work with smaller numbers. This is shown by the example of the Estonian department of the Pribaltiysk Railroad which, taking advantage of the experiences of its Belorussian comrades, shifted over to the new wage system back on 1 June of last year. They have succeeded here in freeing more than 600 persons, while labor productivity has increased by 13.4 percent and wages have grown by 7.5 percent. Labor discipline has been strengthened, losses of working time have been reduced, and the level of people's public activity has grown. But, of course, this did not happen easily.

"Do you know what was the most difficult thing?", the chief of the railroad department, O. Moshenko, asked me. "To change people's minds over to a new way of thinking: not to wait for directions from above, to escape the muddle of a multitude of instructions, which have long been since been outdated, and for each person to feel that he is the true master of his working place, and of the enterprise..."

A interesting observation. The transition to the new pay system can take place only when the entire collective -- every worker and every engineer -- is vitally interested in searching out and accumulating funds.

It is not coincidental that, at Volta as well as at other plants and construction projects in the Estonian SSR, it has been decided to institute a personal accounting of savings. At the beginning of the month, each brigade and each section must know exactly how much of the necessary total amount has already been accumulated, and who has made what contribution to the over-all money-box. Moreover, the engineering personnel as well will also become interested in this, inasmuch as engineers and employees will change over to the new pay system only after the workers.

Bringing order to the administrative structure, limiting its size, and reducing the number of workers is also a delicate business, and by no means a painless one. Indeed, we are talking about a person's professional pride, his social and material situation. Therefore, the republic's party organizations are cautioning against treating people's fates lightly. The collective itself must make the final decision here. Then, both the offence and the complaints will be less.

Particular attention is being given to seeing that increasing wages will be supported by an increase in the production of goods and an expansion in the quantity and quality of paid services. Incidentally, as they told me at Volta, it is by no means necessary to release those people from the plants who have been freed from their jobs. They can and need to be employed on the second and third shifts for expanding production volumes, for increasing the output of consumer goods, for reducing the number of people holding more than one job, and for organizing paid services at the enterprise itself.

The territorial experiment is making it possible to raise wage rates by 20-25 percent and to increase salary scales by 30-35 percent, which will also help to improve the prestige of engineering work. Both workers and engineers are benefitting, but the state is benefitting too. According to calculations made by the Estonian SSR State Planning Committee, an additional increase of more

than 3 percent in the social productivity of labor during the 12th Five-Year Plan is expected as a result of introducing the new wage system.

Besides this, an additional 20 million rubles in paid services will be made available to the population, the volume of construction and installation work will grow by 15 million rubles, and production of consumer goods will increase by 100 million rubles -- an important increase, even if we don't consider the fact that this "territorial model" will also prove useful for other regions of the country. In a word, the republic is on the threshold of an important and responsible test.

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## CIVIL AVIATION

### DEPUTY MINISTER ON CIVIL AVIATION SAFETY ISSUES

Moscow VOZDUSHNYY TRANSPORT in Russian 4, 6 Jan 87

[Article by I. Vasin, deputy minister of civil aviation, under the rubric "The Human Factor": "Responsible for Flight Safety"; passages rendered in all capital letters printed in boldface in source; first paragraph is source introduction]

[4 Jan 87 p 2]

[Text] The newspaper is continuing to publish statements by managers in the sector on fundamental problems in improving the work of civil aviation. So Deputy Minister V. Gorlov commented on a worker's letter on ways for development of aircraft maintenance bases (VOZDUSHNYY TRANSPORT No 133, 6 Nov 86). Deputy Minister O. Smirnov detailed the Program for Improving Work with Management Personnel in Civil Aviation in the 1986-1990 Period and up to the Year 2000 in light of the 27th CPSU Congress decisions (VOZDUSHNYY TRANSPORT No 146, 6 Dec 86). V. Solomatin, member of the ministry collegium and chief of the GlavPEU [Economic Planning Main Administration], opened the rubric "School of Economic Thought" (VOZDUSHNYY TRANSPORT No 153, 23 Dec 86).

Civil aviation holds a special place in the country's polytechnical transportation infrastructure because it is provided with complex aviation equipment which makes it possible to perform various kinds of services anywhere in the country. The sector's uniqueness lies in the fact that it is concerned with a category of complex biotransport systems--with a strictly regulated procedure for its activity defined by state, interdepartmental and departmental standardized formal documents. And whatever is taken from them, there is only one orientation: provide for the complete safety of flights.

### BOTH JOINTLY AND INDIVIDUALLY

New high-speed all-weather airliners capable of carrying many passengers and helicopters that lift heavier loads are coming to the sector. At any aviation enterprise, the latest generation of electronics may be seen next to those in the pilot seats of aircraft or at the air traffic control consoles. There are times in the interrelationship between man and machine when only the highest professionalism and constant adherence to technological discipline make it possible to utilize equipment sensibly and to avoid breakdowns and accidents.



The problem of flight safety is a complex one, and it should be resolved in many directions. One of the most crucial conditions affecting the level of flight safety is the so-called personal factor. It is a predominant cause of serious aviation accidents. Consider carefully the causes of aviation accidents and the preconditions for them: violation of flight discipline and rules, and shortcomings in the organization of flying activity, vocational training and air traffic control. And the breakdowns of aviation equipment as a consequence of structural and production shortcomings come only later on.

In aviation, everything that begins and ends in operating an aircraft is performed by people. In the preparation for and organization of a flight by all the services (including the aircrew), in air traffic control, in the preparation and servicing of equipment, and in the work of the airfield service, everything depends on the individual everywhere, on the level of his skill, and most importantly, on his responsibility.

This is why, when we say that we would have a much more favorable flight safety situation if there were a higher level of technological discipline, we mean every specialist. Whether in the aircrew or in the "crew-controller," "crew-aeronautical engineering service," or "crew-airfield service" chains, INTERACTION should take place everywhere. I emphasize this word because it is precisely what supports the framework of technological discipline.

When you analyze the flight safety situation, you see that a great deal of the work to raise the level of discipline has yielded results: the number of accidents related to the personal factor decreased by 10 percent over the 10th and 11th Five-Year Plans. But let us be frank: we cannot be reassured by this figure. We must take the role of the personal factor into account as usual in all the preventive measures--by improving educational work, by increasing every specialist's personal responsibility for the section of work with which he is entrusted, and by raising the level of professional training (the higher this level, the more promptly that the necessary and essential steps and the required actions will be taken by either the crew or the air traffic control service under extreme conditions, when time is critical).

#### THE CREW--UNITED IN WILL, REASONING AND ACTION

For the present, cockpit personnel have accounted for most of the aircraft accidents, through lack of organization, negligence, lack of professional preparation, and because of the grossest violations of flight rules and a lack of discipline by individual aircraft commanders and crewmembers.

The procedure and amount of training for crews and their organization have been clearly defined by Ministry of Civil Aviation documents, and every aircraft commander must look after crewmembers' professional training and preparation. And the examples I will cite below attest to this: crews that are unstable and have not undergone the proper simulator training for actions in special situations do not demonstrate the proper skill when there is aircraft equipment failure.



At the beginning of last year, there was an aircraft accident at the Bugulma Airport involving an An-24 aircraft of the Bykovskiy Aviation Enterprise (Commander Pastukhov). Copilots were substituted unnecessarily in this crew three times in the last 2 weeks. During January and February, seven copilots flew with Pastukhov. They were taking simulator training separately.

A Tu-154 aircraft from the Krasnoyarsk Administration of Civil Aviation had an accident in December 1984. Flight engineer Resnitskiy, who had 180 solo flying hours, had been in 38 crews during this time. Such a reshuffling of crewmembers had considerable effect on the reduced level of professional preparation.

Over 20 days in October this year, six flight engineers were replaced in an Il-86 crew (V. Smirnov, commander) in the Uzbek Administration; two copilots and three flight mechanics were replaced in an An-24 crew (I. Fomin, commander) over a month and a half; and at the Samarkand Aviation Enterprise, up to eight specialists are assigned to one aircraft commander.

Let us conclude this list with examples from the TsUMVS [International Air Services Central Administration]. In the flight collective commanded by A. Kovalev, crewmembers of the aircraft commanded by Yu. Dyukarev were replaced 14 times from 10 February to 25 April 1986. On 21 May this year, three of Commander Ye. Barkov's crewmembers were replaced without the necessary types of preparation, and the crew was released for flight without a check pilot on board.

In the flight collective commanded by B. Fedoseyev, the navigator in Commander K. Derenchenko's crew was replaced three times without the necessary crew preparation from 22 to 24 June this year.

Failure to adhere to the rules on releasing unprepared crews for work led to aircraft accidents resulting from this in the Far East, Magadan, Tyumen, Yakutsk, Krasnoyarsk, Volga and other administrations.

The more complexity in airplanes and helicopters and navigation and landing systems, the more importance is attached to professional training of cockpit personnel. The Ministry of Civil Aviation collegium is devoting a great deal of attention to this matter. Thus, requirements for selection of candidates for training in flight schools and retraining for new aircraft have been increased, and training of pilots and navigators for transport aircraft is being conducted in higher educational institutions. The Kremenchug Flight School for training helicopter pilots is being readied for the transition to training under VUZ programs.

But obviously higher education alone is not enough to ensure that an individual's high professionalism solves all the problems in a critical situation: a COLLECTIVE, with its unified will, reasoning and actions, IS NECESSARY.

## WHEN THEY DON'T WASH THEIR DIRTY LINEN IN PUBLIC

We don't even have to mention how important it is that there be a good, comradely attitude in interactions among services. Everything is the opposite at the Sochi Airport: they like to investigate attitudes, put the blame on each other, shift the blame from service to service, and write letters to all levels of authority. And here are the results: because of uncoordinated actions in organizing air traffic control, an Il-86 aborted takeoff recently--a helicopter took off from the helipad and crossed the airliner's takeoff path. The commission which investigated the incident disclosed the same shortcomings in the interaction of services which I mentioned previously. In accordance with the results of its work, an order was issued by the minister and all persons responsible were punished severely. The North Caucasus Administration long since has had to draw conclusions, even if only with regard to the assignment of supervisors at the airports and in their enterprises.

Success in ensuring flight safety depends to a large extent on how aircraft commanders and air traffic control shift supervisors organize their work to establish a normal psychological climate in their collectives. What the crew's attitude is toward a flight and how it is imbued with the complexity and responsibility of the tasks entrusted to it, so the work will go, and so the entire flight will proceed. On the other hand, show even the slightest disregard for the organization and conduct of a flight, or permit a minor violation of flight rules and regulations, and you can expect trouble right here. Precisely oversimplification and deviation from the requirements of directive documents led to serious neglect in the work of flight subunits and the traffic control service in the Krasnoyarsk, North Caucasus, Ukrainian, Tyumen, West Siberian, Far East, Kazakh and East Siberian administrations.

And although we have a great deal of experience in trouble-free work at our disposal--about 90 percent of the flight subunits and aviation enterprises have been operating without serious aircraft accidents throughout the year--it must be disseminated more energetically. After all, it is also clear to everyone that the Main Inspectorate and the pilot-navigator departments of administrations have to expose dangerous tendencies and deviations promptly, devote more attention to preventive work, and continuously analyze the role of the human factor.

Meanwhile, a low level of discipline has been observed for a number of years in the flight collective of Tu-134 aircraft at the Grozny Aviation Enterprise. The moral and psychological climate led to disruption of the preflight rest period, certain conditions were tolerated--and they got away with everything. Attempts to toughen the discipline met with the violators' collective resistance. The aviation enterprise management's lack of exactingness led to the point where examples of violating the requirement for preflight rest were provided by aircraft commanders Kovalev, Fadeyev, and Lyashchenko themselves, navigators Pismenskiy and Starov, and copilot Goremykin. Commanders Khakimov, Zhirnov, Skhirtladze and Danilovich committed gross violations of the Flight Manual.

In the North Caucasus Administration, they didn't react promptly to conflicts between supervisory and cockpit personnel at an aviation enterprise. And specifically, between V. Obilets, commander of the flight collective, and aircraft commander E. Khakimov, and between Khakimov and most of the collective's cockpit personnel. The work became the setting for mutual complaints in evaluating the level of professional preparation...

The party committee remained on the side, and as a result, an aircraft accident took place at the Kuybyshev Airport through the fault of Commander A. Klyuyev, Copilot G. Zhirnov, and Flight Mechanic K. Khamzatov.

So all kinds of simplification, cover-ups, and work under the principle of "not washing one's dirty linen in public" grow into persistent lack of principle, irresponsibility, lack of discipline and slovenliness, and lead to violations of regulations and, in the final analysis, to aircraft accidents.

[6 Jan 87 p 2]

#### A RELIABLE BARRIER TO SLOVENLINESS!

[Text] The attempt by some aircraft commanders to color the true state of affairs causes complacency and conceit in a crew. The concurrence of circumstances may leave many deviations from flight rules unpunished. But this is for the time being, as they say. After an accident takes place, some aircraft commanders say they cannot understand how such a thing could happen. But what is surprising is that even the commander himself lost the right at some stage to check correctness and accuracy in carrying out directives and regulations. If he even once displays a lack of principle or violates regulations and this becomes known by the crewmembers, this commander falls victim to circumstances and loses the respect of the crew at best; at worst, both he and the crew start out on the path of violations.

Precisely such crews are gradually sliding down to positions where they violate flight rules and the norms of communist morality of a socialist community; the most flagrant violations of discipline and the preflight rest period, involving the use of alcoholic beverages, are revealed in these very crews. I must say at once: drunkenness and alcoholism are **UNEQUIVOCALLY INCOMPATIBLE** with work to ensure flight safety **BY ALL SERVICES**. Incompatible! The problem is also put this way: the losses and consequences are already too serious. As a rule, if there is a drinking spree in airborne chemical treatment operations, it ends with a disastrous accident and persons die.

We also regard smoking as unacceptable. I should say right away that our work in this direction is still choked up in the initial stage. And just what is smoking? According to official data, if a crewmember smokes cigarettes for 20 minutes before descending from a flight level, his effective memory is reduced by 20-25 percent during the descent. And if you visualize extreme conditions on this flight? The most important information needed for working out solutions and taking immediate actions will be missed.

With regard to drug addiction, we do not have grounds for alarm so far. There is concern regarding the quality of preventive work. FOR THIS REASON, WE CATEGORICALLY STATE RIGHT NOW THAT DRUG ADDICTION IS INCOMPATIBLE WITH WORK IN ANY SECTION OF CIVIL AVIATION!

Unfortunately, the campaign against the causes and conditions which contribute to drunkenness is not being conducted positively and purposefully everywhere. In certain dispensaries and hotels for preflight rest, leisure and athletics have not been organized, there are no fundamental cultural and personal services, and command and management personnel are not supervising adherence to discipline and rest conditions for cockpit personnel (the Uzbek, North Caucasus, Ukrainian, Far East and other administrations).

The discipline and ideological and moral tempering of cockpit personnel have been and continue to be the subject of vital work by the ministry collegium and the Political Administration. The sector's cockpit personnel are highly skilled in their work and are models of selflessness in labor. But alas, there are also other examples when pilots pass judgment on the misappropriation of aviation fuel, overstatements of fact and theft. We need honest labor, and this not just an economic matter. There cannot be two disciplines: the person who overstates results, for example, is a person who presents a threat to flight safety, a model of lack of discipline.

A ChP [a disastrous accident] in Kustanay Oblast which a crew in the Urals Administration brought about may serve as an example. They went from overstatements of fact there to trading in gasoline, from that to drunkenness, and from drunkenness to taking off in a drunken state with an outsider on board and...death. For this reason, we must look directly at overstatements of fact and suppress them as socially dangerous manifestations. And they have been exposed in the Kazakh, Lithuanian and North Caucasus administrations and in the UGATs [Central Regions Administration]. Those guilty have been called to account.

And the violators of all our laws must bear in mind that punishment is unavoidable. No one has been given the right to avoid flight regulations--neither the crews, nor the flight collectives, nor the subunits. And if they begin flouting them, running them down or revising them somewhere, this will come to no good, as a rule.

Something else must be kept in mind: an aircraft is seldom flown by one person now. And more than one person works in air traffic control. For this reason, the role of COLLECTIVE RESPONSIBILITY is increasing: they themselves should check and correct each other. A clause is now being added to the Flight Operations Manual, and an additional paragraph will be added soon: with regard to the fact that aircraft commanders themselves allow deviations from prescribed standards, and that crewmembers are obligated in completing a flight to warn each other openly when deviations are allowed in flying the aircraft. OPENLY! Upon completion of the flight, even though it was completed safely, they are under obligation to report the violations permitted to a command and management official.



All this is being done so that every flight is completed at a high level of reliability and safety. Without harm to those we are carrying.

For this reason, in preventive measures, not one violation should be without regard for openness; it should be criticized. Let us gain educational momentum in the process as well; if the method of persuasion does not turn out to be forceful enough, the Regulation on the Discipline of Civil Aviation Employees will come into effect.

The process of providing for flight safety involves many plans. Sometimes aviation specialists do not want to publicize what took place on a flight and the crew's actions in the process. By being familiar with all the statistics, we could have raised the level of flight safety much higher. For this reason, by taking advantage of ICAO [International Civil Aviation Organization] recommendations, the Ministry of Civil Aviation has approved the decision to introduce questionnaires for all specialists at aviation enterprises. Cockpit personnel will fill out the approved forms, providing the essentials on what took place during a flight and if this did not lead to an accident, no punishment will be imposed, but in any case all the materials sent to the GosNII GA [State Civil Aviation Scientific Research Institute] will be examined under the aegis of the Main Inspectorate. That is, we are granting the right to everyone to openly state the reasons for what took place and to indicate ways to ensure flight safety.

All civil aviation activity is strictly standardized--in codes, manuals, statutes, instructions and handbooks which determine the interrelated activity of production services, subunits, shifts, crews, brigades, and each specialist. But there is overlapping and repetition in such a mass of normative documents, obviously. For this reason, the minister has made the decision to develop and issue a Manual on Flight Work Organization. The experience of advanced collectives in all areas of flight work has now been summarized and many documents have been standardized, which will make it possible to provide for condensation of a significant amount of reporting data in the new manual. The necessary requirements for high-quality control over the level of flight training, the professional preparation of each specialist, and the quality of every technological process have been put into 16 chapters as efficiently as possible.

Reduction of statistical reporting is not an objective in itself, but an effort to bring order to supervision of adherence to laws and the study of rules, documents and orders.

#### SINGLE OBJECTIVES AND ONE RESPONSIBILITY

Strict and rigorous requirements are imposed for crews to follow phraseology rules. Imprecise expressions can lead to measures taken in error not only by crewmembers, but controllers as well. When "crew-controller" communication is understood and reliable, the crew and the controller can demonstrate mobilization of their activity, superior flying skill and teamwork in exceptionally difficult situations. It has already been described how the crew of a Tu-134 and the shift of operations officer Yu. Abramov acted



efficiently as a team when an engine failed and caught fire after takeoff from the Gorkiy airfield in February 1985, making safe completion of the flight possible.

Nevertheless, it must be noted that in a number of cases, communication is not always maintained reliably and violations are permitted in radio traffic. This is unacceptable in general, and particularly in areas with high air traffic density. For example, a near miss in the area of Ukhta between an Il-62 (A. Baskov, commander) and a Tu-154 (V. Barinov, commander) was the result of an error in actions and in the transmission of information to the controller. After receiving the controller's clearance to descend, the crew formally responded with a "roger," but continued flight at the previous altitude. And the crew of the Tu-154 transmitted its time over Ukhta 5 minutes late.

Errors in actions by the crews of An-24 aircraft with the side numbers 46326 and 46596 nearly resulted in an accident on 14 June in the Odessa area: crewmembers did not remain in contact with the previous air traffic control center until communication was firmly established with the new controller.

Often because of the lack of discipline, crews do not maintain assigned altitudes and "slip through" them, occupy a runway without clearance, or enter air traffic control areas without establishing contact (the MTs AUVU [Moscow Center for Air Traffic Control Automation], Khabarovsk, Murmansk, Mineralnyye Vody). Many crews carry out instructions from the ATC service late and with reservations when aircraft are separated and when flights are at adjacent altitudes with varying flight profiles. The violations cited, combined with negligence by controllers, lower the level of flight safety.

It should also be noted in particular that distraction of crewmembers in contact with controllers, and communication among themselves on distracting topics as well, are intolerable. It is necessary to adhere strictly to the NPP GA-85 [Civil Aviation Flight Operations Manual] requirement which states that there are to be no extraneous conversations under any conditions between the ground and an altitude of 3,000 meters. Just efficient interaction between themselves and the ATC service. And besides, during flight the ideal time must be devoted to monitoring the status of equipment, handling radio traffic correctly, and analyzing navigation, the current and forecast weather situation, and the weather and accommodations at the destination airport and alternate airfields.

What is amazing is that violations also take place when a check pilot is on board. His duties and responsibility are clearly defined in the documents regulating flight activity. However, as of today a large percentage of accidents still take place when a check pilot is on board. Because while some of them are checking others, they forget that they bear personal responsibility for performing the official duties of the crewmember whose place they are taking.

In 1985, the commander of a flight subunit of Tu-154 aircraft in the Volga Administration, N. Litvinov, registered himself on his own for a flight assignment immediately before the departure. Because of his poor preparation for it and poor interaction in the crew, the aircraft deviated from assigned

airspace. In the same year, an Il-86 of the Kazakh Administration (a checkout practice flight) and an An-12 of the Yakutsk Administration with check pilot A. Modestov and instructor-pilot N. Gorbunov were overloaded for landings.

And in 1986, we had the unpleasant cases of irresponsible attitudes by check pilots toward their duties. When they selected a landing area on drift ice from the air on 30 March, the crew of an An-2 from the Magadan Administration with check pilot M. Kognoy were in a rush and landed the aircraft on an area which was not in accordance with requirements.

A crew interacts with all services. We have already said that flight regimes must be maintained, the rules of radio communication must be strictly followed, and a high degree of alertness must be ensured in radio contacts in all stages of a flight and followed without fail by all crewmembers. WE HAVE TO RESTORE SUPERVISION OVER THE PREFLIGHT INSPECTION OF AIRCRAFT BY EVERY CREWMEMBER; THIS HAS BEEN LOST WITHOUT JUSTIFICATION. They should be certain that all forms of maintenance have been carried out, that the aircraft's service life is appropriate for this flight, that it has been refueled with high-quality aviation fuel, that tank fillers have been closed, that the control surfaces are deflected, that there is no ice on the aircraft in winter, and that the condition of the landing gear, tires, and so forth is checked.

IN ITS OWN WAY, THIS IS STATE ACCEPTANCE OF AN AIRCRAFT'S MAINTENANCE.

A requirement is being introduced on joint preliminary and preflight preparations and postflight analysis by the crew, with the flight attendant brigades, and under the strict supervision of aircraft commanders. This item has already been entered in the Flight Operations Manual.

#### SPECIAL CASES OR POOR ORGANIZATION OF SUPERVISION?

Special cases in flights affect all types of aircraft. Why do they happen? Because of certain system failures. Because of lightning strikes, torrential rain, blizzards, ice-covered runways, and so forth.

But sometimes a particular situation also develops through the fault of the crew, which itself allows the errors, and then it goes out of control. For this reason, a crew should know how it must act in every specific case at any airfield. These actions should be developed to the point that they are almost automatic, but deliberate. For this reason we train crews especially for failures and fires, everything that can happen during a flight. A pilot who is trained and conditioned and possesses specific psychological and physiological qualities will handle any possible complications in flight within his authorizing capacity.

And some pilots and crews involved in PANKh [the use of aircraft in the national economy] put themselves in these very conditions. The safety situation in using aircraft in the national economy is cause for concern. The main cause of accidents is the poor organization in supervising flights by the commanders at all levels. I will give a number of the most cogent examples.

During an approach in a complicated flight segment on 6 May 1986, A. Abramov, commander of a Ka-26 from the Moldavian Administration, was distracted from his flying, lost altitude and collided with electric transmission wires. A ride given customer passengers by the crew of an An-2 (A Stashkus, commander) from the Lithuanian Administration led to a serious accident. A. Kagosyan, commander of an An-2 from the Maykop Aviation Enterprise, permitted a youth to ride in the copilot's seat. N. Petrichenko, commander of an An-2 from the Bryansk Aviation Enterprise, overshot a point without authorization on 22 May and nosed over. One may ask: where were the commanders of the flight collectives and units?

There have also been disgraceful cases of concealing such accidents. All this attests to serious negligence by command and management personnel in reinforcing discipline and order. This also indicates that they are not making sure that the professional training of pilots in PANKh aviation enterprises is improved, because organizational causes and professional shortcomings are closely interrelated.

Individual helicopter crews have not been taught to take takeoff and landing conditions into account: the wind, temperature, and conditions and dimensions of landing areas. Flying at an unsafe altitude, insufficient skill to operate during a snowstorm, and other causes led to serious accidents for helicopter crews of the East Siberian, Tyumen, Krasnoyarsk and Far East administrations. For this reason, the conclusion also must be drawn that crews themselves very often create the conditions for particular situations and, as experience shows, cannot get out of these situations creditably.

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A great deal of responsibility lies with civil aviation in carrying out the plans of the 12th Five-Year Plan. But the political and labor upsurge and initiative developed in collectives during socialist competition to greet the 70th anniversary of the Great October Revolution and the inexhaustible resource in the human factor--in people, their skill and creative labor, their high degree of organization and discipline--are guarantees that the tasks set by the 27th CPSU Congress will be successfully carried out.

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## CIVIL AVIATION

### Il-86 OPERATIONAL PROBLEMS EXPLORED

Moscow VOZDUSHNYY TRANSPORT in Russian 18, 20 Dec 86

[Article by VOZDUSHNYY TRANSPORT special correspondent V. Tamarin, under the rubric "VOZDUSHNYY TRANSPORT Roundtable: Take Care of Your Airplane": "Spreading Mighty Wings--The Il-86: Problems in Intensive Operations"]

[18 Dec 86 pp 2-3]

[Text]--Tashkent--Alma-Ata--Sochi--Mineralnyye Vody--Vnukovo--The whole country, all of its people, are proud of this airplane. Beautiful in flight, solid, but elegant on the ground, comfortable for the passengers, economical and reliable in operation, the Il-86 has long been the acknowledged flagship of Aeroflot.

Look at the passengers arriving at the airports of Moscow and Norilsk, Novosibirsk and Sochi, Mineralnyye Vody and Tashkent, Alma-Ata and Leningrad and other cities--they look impatiently around the airfield for the familiar outlines. They admire them, they are pleased with the encounter, anticipating the flight with pleasure. People are proud of the intellect and talent of those who created the Il-86, those who take it into the sky and those who service it on the ground.

But... this plane carries about five percent of Aeroflot's passengers a year. And this circumstance cannot help but trouble both the rank-and-file workers and the management of this sector.

What is going on here? Why are they unable to achieve the necessary flying time and thus make efficient use of the capabilities of the aircraft?

The phone rang one October day at the editorial offices.

"Want to see an open-air museum of the best aircraft?" a man representing the aviation equipment shop of labor-intensive maintenance routines at the Vnukovo ATB [Aircraft-Servicing Facilities] asked. "Come over here--we'll show you the 'iron row' where beautiful Il-86s have already sat for half a year without engines."

"Can it really be half a year?"



"Yes. And periodically up to half of the fleet of these aircraft are here for weeks for servicing--there are no spare assemblies, units or various equipment."

It turned out that they called again from Vnukovo less than an hour later: this time we knew our caller well--he was the deputy commander of the Il-86 aircraft subdivision for political affairs of the VPO [Vnukovo Production Association] and former writer for this newspaper, Viktor Nikolayevich Demakin.

"The plan is going up in flames, comrades," he said. "We are ashamed to look the pilots in the eyes: they are standing around. The best summer weather has passed, and we will probably not reach the cherished plan figure. And how can we reach the plan if for 10 months of this year we have canceled 175 round-trip Il-86 flights and the cancellations continue? Can it really be possible, and how can they be made up in the remaining time? At the trade-union committee, we of course insisted that they show us the reason for the disruption of the plan and socialist obligations. But that is no easier. The time has come to take on socialist obligations for the 70th anniversary of Great October, but how can we speak of the necessary intensity of labor if we don't fulfill our socialist obligations for this year?"

That is how our trip from Vnukovo around the base and transit airports where Il-86s are operated and serviced began. We wanted to find an explanation for why this top-of-the-line modern aircraft was forced to sit on the ground in a dreary wait for flights.

The specialists of flight service and the aircraft servicing facilities with whom we held a roundtable on arrival at the locations could answer these questions best. Their opinions are at the foundation of these features.

The Il-86 is AN AIRCRAFT THAT IS RELIABLE IN OPERATION, all of its systems have manyfold redundancy, but no equipment is ever guaranteed against failure for anyone. The flight crews of Flight Operations Management have demonstrated high professional skills, self-possession and knowledge. But there is a question: why is this Management supplied with only three crews, while there is not enough other methodological literature?

The cream of the transport aviation sector flies the Il-86s. But in the Vnukovo subdivision, which was the first to assimilate the aircraft, the best of the best have been assembled. They know how to care for the equipment and have an enthusiastic and affectionate attitude toward it. Naturally, they should be well matched with the airfield servicing personnel. Only through close interaction can these collectives achieve the maximum flying life for the aircraft. This is both the duty and the obligation of both pilots and technicians.

Let's look at the impartial numbers of an economic analysis of the production and operational activity of the Vnukovo Association over 9 months, signed by the chief of the Labor Organization and Wages Department, T. Teplinskaya. It is so eloquent that perhaps no commentary is required on it.



Thus, the total tonnage of shipping compared to the corresponding period of last year has increased by 5 percent, and labor productivity by 2.8 percent. Some 144.2 million passenger-kilometers were carried out beyond the plan, and 27,350 passengers were dispatched from Vnukovo along with 419 tons of mail and 2,225 tons of freight; more than a million rubles of profit were obtained... Il-86 flight productivity increased by 1.4 percent, and the volume of shipping by 18.9 percent.

As a consequence of the poor preparedness of the aircraft fleet, however, the regular fulfillment of the state air-shipment plan is not ensured. In June, in the face of demand for shipping, 9 Il-86 flights were canceled on the Vnukovo--Simferopol route; some 45 flights on the Sochi, Sukhumi and Simferopol routes were carried out using Tu-154 and Il-62 aircraft instead of Il-86s, with a reduction of 1,049 in the number of seats offered for sale, which was the basic cause of the underfulfillment of the plan for total passenger departure volume.

The aviation-engineering service did not provide for the standard level of Tu-154 and Il-86 aircraft readiness in a single month of the second quarter, the most intensive period of operations. All of this, naturally, was largely reflected in the passenger service climate. Flight regularity in the second quarter declined by 3.1 percent, and by 2 percent for the 9 months according to operational results, taking weather conditions into account.

Also interesting are several other figures from the analysis. The plan for the entry into operation of fixed capital was fulfilled by 91.6 percent, and the quantity of canceled and postponed flights at the fault of the flight crew compared to the same period of last year increased by almost four times, while the number of absentees in a number of services, especially the aircraft servicing facilities, increased, and for various reasons some 67 people were not at work there every day...

That is, according to the analysis serious reserves for improving the activity of the Vnukovo Airfield can be discerned, and chief among these is a qualitative rise in discipline. Both labor and technological discipline. It is not for nothing that it was proposed in the investigation at the aircraft servicing facilities that violations of technological discipline be equated to violations of labor discipline--the prospect of an introduction of order is seen in this.

It is not necessary to rush in this matter, but the geography of Il-86 flights is being expanded too slowly. Runways have been built in a number of cities that can handle this airliner, for example, along with air terminals that can service the passengers on its flights. The matter is providing for ground services and the training of specialists. And this question is acquiring social acuity under current conditions, since the interests of society and its transportation infrastructure are affected.

There are many people among the Il-86 commanders with much operational command experience. Maybe they could also be asked what must be done so that the beaten path to Khabarovsk is handled not by an Il-62, but by an airbus?

Flights there and back in December of 1985 were very efficient--some 60 tons of fuel were economized, and on eight flights VPO was even able to "rescue" the yearly plan. But that's all. The volume was once again transferred to Domodedovo, motivated by a concern for passenger comfort--on a non-stop Il-62. And can it be that there are other reasons nonetheless? Then it is necessary to cite them, not sow innuendoes and allegories...

By the way, a word on Domodedovo. All pilots that we spoke to then asserted unanimously that there is much more order there than at Vnukovo. Flights from there and servicing during the time of runway repairs at the home airfield were regarded as golden days, as the model. And it is no accident that reports even surfaced after this of requests to return to Domodedovo to fly Il-62s. This means that the issue also rests on the organization of labor and the careful attitude toward people and their requests.

The VPO management is also unconcerned about the servicing-facility working conditions. Otherwise we would proclaim at the top of our voices what we saw at the airport.

There are no telephones at the aircraft hard stands, and communication is therefore on foot, you have to run a kilometer. Serious things are concentrated in such a seemingly small technical detail--good working order, regularity of flights, fire safety etc.

There is no centralized refueling station for the gigantic aircraft. This also has a qualitative effect on flight regularity.

A quarter of the aircraft hardstands are not electrified, and some are not equipped with ground fuel sources. The auxiliary power sources thus are run down. Their service life and fuel is used up, and there is an additional burden on the flight engineers.

There are no hardstands at Vnukovo or any of the other fields for handling the "Arctic" aircraft. There are frequently instances today where liquid coming from the fuselage falls on passengers. It comes with snow into the compartment and ruins the aisle rugs and creates an unpleasant odor in the compartment. It has been proposed to set an official time in the classifier for flight regularity in civil aviation--up to 35 minutes--for the handling of an Il-86 at the start-up point, when the passengers are seated and the crew is in the cockpit--one flight engineer tracks this process.

I do not think that the shortcomings enumerated above are a trifle, that does not reflect the concept of "taking care of the aircraft." To have an affectionate and assiduous attitude toward the equipment is to speak up about everything that hinders the manifestation of this concern. This does not always depend on the Vnukovo workers. For example, the wits assert that at one time the steam locomotives shone with a cleaner surface than that of Il-86 No 86005; paint was peeling from the surface and fuselage, and soot was eating into the tail unit. Due to the absence of a hangar, washings and paintings, the aircraft had taken on such an appearance. It is simple: this is one of the first aircraft, and they have gone more than 7 years without capital repair at the plant.

In the opinions of crews and other aviation specialists, the Il-86 is more difficult and slower to assimilate than was the case with other types of aircraft. The Il-86 requires enhanced attention. A simplistic approach will make itself known at once. The appearance of the same failures, the repetitiveness of defects. We read the November issue of the wall newspaper AEROBUS, which hangs in shop No 9 of the Vnukovo ATB. In a notation under the title "It is Time to Restructure!" is written: "We are working poorly on the elimination of repeat defects. Thus, aircraft No 86005 has been noted seven times for a "whistle" in the area of the left forward emergency door. Engineering shops No 2 (operational maintenance) and No 9 (labor-intensive maintenance procedures) signed off on the elimination of the defect."

The same note, written in a principled manner with the fervor of combat, mentions a slovenly attitude toward expensive equipment. Thus, in inspecting the storage of aircraft No 86018, which sat for several months in the "iron row," it was discovered that the radio equipment had not been removed and placed in the warehouse. Guilty in this were Senior Avionics Engineer V. Kapustin and radio technician O. Nikolayev.

On the same aircraft, sideboard strut No 2 turned out to be unsealed and much wear was found in the safety belt fastening assembly in the passage from the lower deck to the upper first-class compartment. This was the fault of aviation technician A. Khysyainov.

The aircraft of the notorious row are being stored with a whole list of violations. Il-86s Nos 86006, 86017 and 86018 are missing wheel chock sets, not all plugs have been installed, chassis doors are open and the mechanical equipment had not been removed. It is even clear to the non-specialist that this is scandalous mismanagement in that the discussion concerns tens of millions of rubles.

The Il-86 spend 23.2 percent of available calendar time on flights. In 1985, due to the disjointedness of scheduling, even the planes in good working order did not fly 15.9 percent of the time. And this year, as before, the schedules are being composed for the aircraft with departures for the south basically planned for nighttime, because objectively the ATB can only carry out scheduled forms of regular maintenance in the daytime. It follows from this that only half of the Il-86 aircraft fleet of the Vnukovo Association is actually active in a year.

Winter has come to Norilsk, and soon Il-86 flights there will "rest" due to the temperature (there will be fog during landing hours), and the same ground conditions will obtain at the back-up airport--Khatanga (the other--Igarka--has also not been prepared as a back-up airport). All of the proposals of the crews to change the departure time are still in vain. References are supposedly made to the opinion of the passengers coming to Norilsk: they, it is said, create the arrival times. But this is a false premise, since the Norilsk people themselves have repeatedly requested scheduling changes.

In winter the number of flights is reduced, and there is the possibility of maneuvering crews flexibly, i.e. covering all flights with available flight

crews. But in the summer... the shortage of co-pilots (up to 14) and flight engineers persistently dictates the necessity of norms up to 75 hours. Or another way out can be seen: insofar as the Il-86 retraining is carried out in Ulyanovsk all the same, why not put the instructor staff of Training and Instruction Subdivision No 21 on flight duty for this period? This is within the authority of the VPO chief.

The senior engineer positions often remain vacant here (except perhaps avionics). The volume of work is large, the wages are not particularly good, bonuses, we know, have not come for two years, and that is why specialists do not rush to take the job.

But why isn't the paid flight time for the command staff of the flight collectives increased to at least forty hours in the summer? After all, will they have to fly anyway--the senior navigators, the flight engineers and the commanders of flight collectives?

Let's say this is an involved question, under the jurisdiction of the ministry, and cannot be solved so quickly here. Let's take another one: yes, the plans for the second and third quarters of this year were not fulfilled, but not for reasons depending on the subdivision. And here is an entire large collective completely excluded from socialist competition. It is not even considered at the association trade-union committee. They are limited to this extent, not looking into the essence of what happened. At the same time, the ATB collective receives bonuses as if nothing had happened--everything is in order here with the cited entities, and good working order is not entered on the list of competition indicators.

A paradox? If so, then a sad one. But this is sooner a classic example of formalism in the organization of socialist competition, since the ATB is not tied to the end result--the execution of flights. And it boggles the mind that the actual restructuring of association trade-union work is still far from the restructuring that is observed in our society.

This impression remained after the visit of two collectives from Vnukovo.

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At any airport--a base or a transit one--they will tell you about the poor technical-service accommodations of the ATB, the shortage of hardstands, their poor illumination, the absence of means of communications etc. And all of this will be true.

The lack of reliable ground power sources in servicing Il-86s was cited as serious difficulty number one at Vnukovo, Alma-Ata, Tashkent, Sochi, Sukhumi and Mineralnyye Vody.

"They say that the manufacturers knew how to create one unit for these purposes," O. Paleyes, Alma-Ata ATB deputy chief engineer, "shared" the information. "From those sources we heard that about ten of them would be sent to the base installations of civil aviation. But when? Do they exist?"



"And they don't think about the Il-86 transit airports at all," said Mineralnyye Vody Airport Commander L. Gurov heatedly. "Will we really have to 'destroy' our airport mobile power units more? Just think what this costs the sector: consumption of fuel, wear on the equipment, the distraction of specialists. Servicing safety on the ground is also reduced."

"We are using an AMG-60 vehicle for a power supply, but there is also a catastrophic shortage of those," grieved V. Blinokhvestov, an ATB chief from Tashkent.

"Our crews turn on the auxiliary power source--its service life gets used up, fuel is consumed and servicing safety declines," complained Vnukovo ATB Chief Yu. Kashitsin.

And so, it is a problem. My interlocutors have noted reasonably that more agility and persistence should be manifested by the GUZSANT [Orders and Supply of Aircraft and Ground Equipment Main Administration] of MGA [Ministry of Civil Aviation], working directly with the Ministry of the Aviation Industry.

The operational workers are also waiting for field-service units that are created for spray self-protection of the engines from foreign objects that fall into them, which cause pitting of the blades and put the engines out of service. The Alma-Ata workers have one aircraft in operation with self-protection installed, which for the Tashkent workers turned out to be a technical revelation.

Their surprise in this matter suggests that, apparently, GlavNTU [Scientific and Technical Main Administration] and the GUERAT [Operations and Repair of Aviation Technical Equipment] are not that concerned with raising the level of information for technical specialists or at least ATB managers. In this regard, a suggestion was made in Tashkent to assemble, under the aegis of GUERAT, the managers of operational subdivisions and the developers for an exchange of information. At least once a year.

They could object to whether it is necessary to do this, when there are representatives of the Ministry of the Aviation Industry [MAP] and the design bureaus at the ATB. But, in the first place, there are few of them, and the volume of their work dictates that they are constantly busy; second, they are quite "narrowly" specialized, and they always have to send for new stuff from the flight-test stations of the plant. And the problems, meanwhile, accumulate.

There are a number of organizational questions on the technical maintenance of the Il-86 that cannot be brought to uniformity in the field by themselves. For example, in servicing the Il-86 the UPG-300, AKZS-K-75, UVZ-2 and other special transport machinery is used. Who should work on them and how--the specialists of the ATBs or the SST [special transport equipment] bases--is an issue resolved in various ways everywhere. Because they refuse to work on the machinery in the special-transport services, referring to their technical certificate, in which it is written that they are serviced by the technician and the operator. And according to NTERAT-83, the aviation technical base is



concerned with the servicing only of aviation equipment of the aircraft and mobile-laboratory types.

"In the garage they announce that they are not prepared to work on this machinery, and they would have to allocate 14 men (and for the Il-86 servicing this is a whole crew!) to work on the special transport," said Alma-Ata Airport ATB Chief B. Yeliseyev.

And don't think another problem isn't important as well: fuel consumption in Il-86 servicing. Under conditions where all of the services are placed within the confines of strict limits, the ATB cannot actively participate in the struggle to economize it: the SST requires coupons from the ATB for gasoline or diesel fuel for as long as they calculate the work will take. And speedometers and pouring meters? No one looks at them--only time is what counts. Standard time. But sometimes the work is finished earlier. If that is the case, why are coupons not returned from SST for the work time? In Alma-Ata, for example, they look hopefully on this proposal, while in Tashkent it has already been incorporated. Having legalized the initiative of some, the MGA could help others to cover the gap of uneconomical fuel consumption.

In Sochi, ATB Chief V. Rak, shop chief L. Stepanov and section chief V. Demin feel it is important to raise the question of the selection of the optimal time for delaying departures for the elimination of defects in the operational servicing of airliners. As for the requirements of the unconditional safety of flights (the qualitative fulfillment of operations) and flight regularity, specific recommendations for making unambiguous decisions are needed.

The engineering and technical staff should know well and skillfully employ in practice the principal methods of programmed inquiry of the causes of the breakdown of aviation equipment. For example, those such as the "weak-point" and "time-probability" monitoring methods etc. The incorporation of these methods, however, is restrained by the inadequacy of the corresponding literature on the inquiry techniques.

And more. Journals are kept in the operational subdivisions to account for the breakdowns of aviation equipment, and they contain valuable statistical information on the features and causes of the appearance of defects, as well as the delay times of plane departures. Apparently, the time has come to develop a unified form for these journals in which would be reflected not only the overall time of delay, but the time for the organization of operations and the time for finding the defects and eliminating them. In addition to the journal, it would be good to have a codifier of the traits and causes of breakdowns, so as to make use of computer technology for this.

The real-time organization of operations requires that the production level be distinguished by mobility--it should either be on wheels or at the hardstands. This is several vehicles of a light type, along with electric cars...

We do not submit such a detailed exposition of the proposals of the Sochi workers on the pages of the newspaper by accident: people are irritated that neither at GosNII GA [State Scientific Research Institute of Civil Aviation] nor at GUERAT are they interested in what experience has been accumulated in

Sochi after the first years of Il-86 servicing. This vexation comes from the lips of the Alma-Ata ATB specialists as well.

"With the help of GosNII GA recommendations, we are achieving a reduction in labor intensiveness in IL-86 servicing," said Alma-Ata ATB Chief B. Yeliseyev. "For instance, according to format B-1 some of the work was removed and an ASD-86-2 automatic engine diagnostics system was incorporated. But why not disseminate this scientific and technical progress to the airframe system as well? That is, it is necessary to make the reduction of labor-intensive work comprehensive. And this will be in keeping with the times, not formalistically, but as a tribute to the requirements of the day and the level of the equipment, which in its parameters corresponds to world prototypes or even exceeds them."

New developments are awaited from GosNII GA on the demonstrability of breakdowns that are presented as complaints for the industry. Especially in the area of electronic radio equipment. This is what happens: the crew fixes the breakdown, it is even registered in the objective monitoring equipment (OME). But in the laboratories at the manufacturer's plant, it is not accepted, it is not confirmed by testing.

This is a serious issue associated with flight safety, and it should have been understood long ago that laboratory conditions and flight conditions are quite different things: the smallest transition from one state to another (and in flight this is an excess of temperature, pressure or vibration) causes the violation of the functional systems.

In order not to put the operational workers in the position of people who are always crying wolf, it should probably be established that a foundation for presenting a complaint should be the crew records and the OME indications.

"And we feel that in this case there cannot be two opinions," said Tashkent ATB Chief V. Blinokhvostov, Sochi Chief V. Rak, Sukhumi Chief M. Gvindzhiliya and Vnukovo Chief Yu. Kashitsin.

"Science is closed off to us," said Alma-Ata ATB production chief Yu. Ponomarev, "otherwise how do you explain the fact that the scientists have come up with nothing to get rid of snow and icing on the Il-86. They should see what circus performances are manufactured by the workers when they clean off hundreds of square meters."

I myself observed such gymnastic exercises at Vnukovo. It was especially difficult to clean off the tail assembly.

"It is very difficult to tend to an aircraft," said Yu. Kashitsin. "In operation the coating is destroyed, and putting a new one on is only possible under factory conditions. If we do it in a home-made fashion, without exposure to the necessary constant temperatures, without the choice of a single shade for the whole aircraft--we'll practically end up with a camouflage paint job."

Yes, reliable and convenient mechanized equipment for washing operations on the Il-86 is poor--that is, if there is any of it. And so the appearance of the aircraft should also be brighter, or simply--cleaner. How much kerosene is lost in flights with dirty surfaces!

In discussing the paint job and other serious regular maintenance operations, we come quite close to the question of the efficient basing of the Il-86. This is seen as one of the ways of raising the efficiency of technical maintenance. The specialists are unanimous: the concentration of these planes is necessary, not their scattering among airports. There is another trend as well: some administration chiefs (and not without the assistance of local organs of power) are trying to get several planes allocated to them without thinking about whether they can fully take on the servicing of such a plane.

The path of cooperation of the efforts of two or three enterprises in technical maintenance is the most acceptable prospect. We have the first prototype with the beginning of operation of the Armenian Administration of Civil Aviation's Il-86 aircraft based at Vnukovo.

A similar form of interconnection has turned out to be attractive for the Tashkent and Alma-Ata workers. Regardless of the fact that Alma-Ata has a hangar complex that can handle the servicing of two Il-86s at once (it is called a mini-aircraft-repair plant in jest), they did not display local chauvinism here and voted with both hands for the idea of the Tashkent workers: couldn't we try to unite our efforts, special equipment, material allocations and personnel for the fulfillment of heavy routine maintenance?

The engineering-management staff of the ATBs of these two airfields is proposing that the fulfillment of a set of refinements and formats of heavy routine maintenance is completely possible for the personnel and out of the spare parts, assemblies, equipment and units of both airfields. This will also ensure the high quality of operations, centralized material and technical supply, the accumulation of a large body of statistics and the concentration of a large detachment of specialist-developers and plant workers. They will be able to employ universal work technologies and their organization more completely with a regard for cumulative experience.

The Ministry of the Aviation Industry and other related ministries are also in debt to the operational workers of the civil-aviation airfields. We will consider just a few problems--specific and general.

Four Il-86 aircraft have sat at Vnukovo without engines for months (No 86017 since May 14, 86018 since July 26, 86006 since August 12 and 86013 since November 5, and before this there were variations from aircraft to aircraft).

Can it be that the promises of the engine producer plants that were made at the 8th Flight-Technology Conference on the Il-86 on rendering assistance to the airfields with engine supply have been forgotten?

Many of the VPO's difficulties are associated with the pioneering assimilation of the aircraft of the Tupolev and Ilyushin design bureaus. After all, the first Il-86s, Nos 86004-86006, were operated here up until recently, and their

readiness does not exceed 50 percent: they stand idle either due to engines or some other field changes. That is, the oldest fleet of Il-86s is at Vnukovo. Therefore, the flight time of the line planes is low due to the fault of the industry.

Practically all of the Il-86s of the Tashkent Airfield have exceeded their guaranteed service lives, and are currently being serviced according to the so-called post-guarantee TO [technical maintenance] system, based on the joint resolution of four ministries. But this system is extremely inefficient due to the reluctance of MAP, the Ministry of the Radio Industry and the Ministry of Communications to fulfill it. In 1985 draft agreements were sent to all the enterprises of these ministries, but they received only negative responses or responses with a "reserved opinion." Little has changed this year. Therefore difficulties are also arising in ensuring the good working order of aircraft. Thus, due to various procrastinations, two Il-86s of the Tashkent Airport sat for several months. It is true that the imperfections of the method of detecting and eliminating defects used by GUERAT also had an effect--the transfer of the plane to GosNII GA.

As surprising as it is, the question of providing test-stand equipment has still not been resolved in Tashkent. They spend enormous amounts of money there as before on the organization of unit verification of oxygen equipment, flowmeter sensors and BI-6 blocks of PPS systems at the Vnukovo ATB and the Ministry of the Aviation Industry plants that produce them.

It has become difficult to present complaints to the producer plants due to the differences of interpretation of a series of points in the basic documents that regulate the relations between the MAP plants and the airports. The research of complaints drags on for many months, and only then do substitute assemblies come, although the times for this should number in the days.

A most important problem is the quality level of field changes of equipment in operation. This relates first of all to the practice that responsibility for it, notwithstanding GOST [All-Union State Standard] 244435-80 (p. 5.18), is borne equally by industry representatives and the IAS [engineering and technical services] of the airfields. Knowing this, the industry representatives do not worry especially about the completeness and quality of the work, relying on the monitoring of the operational enterprises. It is long past the time to legislate that the signature of the aviation-plant representative alone confirms that the field changes have been completed.

Planning the execution of heavy routine maintenance procedures on the Il-86 also causes bewilderment, and moreover their labor intensiveness is inordinately unwieldy and extensive. And this is with the presence of redundant systems. The execution of heavy routine maintenance operations according to format 3 will become a serious problem in the near future for many airfields. There is therefore good reason to heed the opinion for the creation of zonal "Il-86 aircraft maintenance centers." In this regard, I would like GosNII GA, where all the same verifications and analyses are conducted without regard for the opinions of the operational workers, to heed these words.



The designers and researchers, along with the operational workers, must radically reconsider their attitude toward the new equipment. The more so as it is in need of serious finishing. Thus, they record 70 percent of the avionics breakdowns in Alma-Ata, and the number of complaints is increasing from year to year.

It is desirable that special groups be created at this stage of Il-86 operations, consisting of the leading designers of the design bureaus and supplemented with specialists of the ATBs and civil-aviation administrations, and charged with the management and monitoring of the assimilation of the new aircraft. This desire was expressed in Alma-Ata, but, it seems, it is acceptable for other airfields as well, especially where they will be operating this aircraft. And there is no doubt that the geography of its operation will be expanded. The question is only how to preserve the aircraft longer, so that it can serve the people reliably and faithfully for years to come.

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## INTERSECTOR NETWORK DEVELOPMENT

### SUGGESTED IMPROVEMENTS FOR RIVER-RAIL COMBINED SHIPPING

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[Article by A. L. Baritko, head of the Ministry of Railways' Department of Combines Freight Shipments, under the heading "Complex Transport Problems": "Combined Shipments: Key To Efficiency"]

[Text] The transport system has been set ambitious tasks in the 12th Five-Year Plan. Carrying them out will demand coordinated development of the Unified Transport System, improved coordination of the operation of all types of transport, eliminating inefficient shipments, reducing freight delivery time and protecting freight. There are many unresolved problems in these areas. One is to increase the effectiveness of combined rail-water shipments.

Such shipments have a number of distinguishing features. In particular, the total distance involved generally increases, due mainly to the fact that the balance of the freight traffic by rail is latitudinal, while the main waterways are meridional.

The waterways intersect the direct rail mainlines, but freight is delivered to water transport at different points, often far removed from the its destination. Also, freight is sometimes hauled to the waterways from directions directly counter to the directions of the shipments. For example, Donetsk coal is hauled by direct freight north, through Popasnaya Station and Kupyansk, from Manuilovka Station to the Yaroslavl TETs. However, the coal is shipped by river south to Ust-Donets and then by river north to the port of Yaroslavl, where it is loaded onto rail cars. The total combined-shipment distance is thus more than doubled.

When timber is hauled from the eastern regions to Yasinovataya, Syran Station is the point at which the direct rail line intersects the main waterway. However, the timber is hauled not to Syran, but to Perm Station, that is, by a longer route and one that in addition requires two transshipments.

The result of switching this freight-traffic transfer from direct rail to combined shipments is not that the railroads have less work in sectors where they operate in tandem with water transport, but mainly that only the water transport system is simply utilized, and it is underutilized anyway, to be blunt. This negatively affects the shipment of other important freight.

In particular, given the exact same volume of freight shipped out, in tons, the number of start-finish operations increases three-fold for each shipment, consequently increasing the labor-intensiveness of the shipping processes as well. Moreover, the demand for rail cars is increased, as are the number of points collecting empties and the amount of time spent hauling empties. All this reduces the railroads' hauling capability and leads to more empty runs, to reduced rail car productivity, and to other negative consequences.

In many instances, freight is transferred from river to rail transport not in the ports closest to the train lines, but in ports further away. One example is the hauling of salt from the Baskunchakskiy salt flats, which involves two transfers. Instead of transferring the salt from the closest ports (Kuybyshev, Syzran), it is hauled, at the insistence of the river workers, to Perm and Ufa. Such rerouting artificially increases transshipment work for river transport.

When the salt is transferred to rail transport in the port of Ufa, the total shipment distance is increased by 600 km as compared with transshipment to the port of Kuybyshev. In order to ship the salt from the port of Ufa, several dozen empty cars must be delivered there every day. At the same time, a large number of empty gondola cars pass through Kuybyshev on adjusted consignment to the east, and these could be used productively to haul that salt to recipients on the Kemerovo, East Siberian and Tselin railroads.

In every case, the total shipment distance is significantly higher with two transshipments. The increase averages 1,000 km for the 32 freight shipment balances examined and is up to 1,500 km in some instances. That is why combined freight shipments must follow transport routes that are most appropriate from a national-economic point of view. Moreover, this approach is also very important when selecting the locations of new "freight-generating" enterprises.

Freight routing should be done with a view towards maximum reduction in the number of intersections of the various types of transport, with preference being given to direct, non-transfer hauling. It is no secret that even internal junctions within a single type of transport, railroad divisions and sectors for example, create certain difficulties and delays in rail car traffic. Naturally, when freight is transferred between different types of transport, these delays are more significant and lead to a sharp increase in transport expenditures.

#### How Many Transfers Are Necessary?

Water transport can and must be used to haul freight whose points of origin or consumption gravitate towards water transport routes. Unfortunately, the potential of river transport is not taken into account fully enough in current combined-shipments planning. Thus, only about two million tons of freight originates directly on the entire Volga-Kama and Baltic Sea system, and only about four million tons is transferred to enterprise wharves. The remainder of the combined shipments is artificially developed by hauling freight to and from the river ports by rail.

Organizing freight shipments in such a way, with numerous transfers, complicates the operation of rail transport considerably and leads to additional strain on it during the tensest work period, the 3rd quarter. This is precisely when the railroads are carrying large numbers of passengers, doing track maintenance work, hauling the new harvest, and redeploying agricultural equipment and vehicles in the harvest regions.

One would think river transport could be increasing non-transfer direct shipments by water from originators directly to recipients' wharves at that time. Shipments with a single transfer would also be appropriate, as this would permit a reduction in the number of "runs" made by rail cars. In actuality, though, river workers sharply increase their demand for freight, creating additional loads on the railroads and complicating their work. Data from an RSFSR Ministry of the River Fleet analysis of the quarterly demand for freight shipment by rail confirms this: in 1983, the first quarter accounted for 17.6 percent of the annual volume, the second quarter -- 24.2 percent, the third quarter -- 33.6 percent, and the fourth quarter -- 24.6 percent. In 1984, the figures were 19.9, 23, 36.3 and 20.8 percent, respectively, and in 1985 -- 14.7, 27.5, 34.6 and 23.2 percent.

But does combined-shipment freight always require several transfers? Let's examine the current transport schemes for such shipments where two transfers are involved and evaluate the national-economic losses incurred.

Take coal, for example. It is the main freight hauled by combined shipment. As compared with direct rail shipment, the additional losses are 3.2 percent, or tens of thousands of tons per year. And how many thousands of tons of critically scarce diesel fuel are burned in the fireboxes of the ships hauling this coal on the river leg of the run? These figures should, one would think, give pause to other people besides just the USSR Gosstrib workers, who distribute the funds. The very fact that these losses are irrecoverable should be a decisive barrier to the use of transport schemes with two transfers.

Moreover, in addition to the purely material losses, there are also high transport outlays. After all, a coal delivery planned for but "lost" en route must still be supplied to the consumers. This will require supplying over 3,000 additional rail cars and more than 80 trains to sectors where freight traffic is already heavy. Who needs such shipments? Perhaps some other factors "cover" a large portion of these losses?

Let's look at the transport factor and trace the entire scheme of shipments from originator to recipient. A rail car must be readied and supplied for loading with some particular freight. This must be done both at the point of origin and again at the transfer point. The same two freight-handling operations occur during unloading: at the port, during transfer to river transport, and at the point of delivery. When transporting, let's say, 12 million tons of freight from rail cars in a combined shipment involving two transfers, there are 340,000 additional freight-handling operations. The actual time the cars spend in these transfer junctions is 25-40 hours, and switching equipment must also be diverted for technological operations. The cars are out of the traffic flow for this entire time.



The fact that combined shipments with two transfers involve mainly high-volume bulk freight such as coal and ore consigned to large consumers is another essential factor. By rail, they travel routes without reprocessing in classification yards. The loading and unloading areas of the originators and recipients, respectively, are designed for work with mainline trains. But the freight-handling areas in the riverports cannot accept an entire mainline train. Moreover, second-transfer ports use clamshell cranes to load the cars, and these can process only single cars or small groups of cars at one time. Considerable time and a great deal of switching is required at these second-transfer ports to make up mainline consists.

Thus, not only do combined shipments with two transfers fail to free up railroad rolling stock (which should be the primary goal of river-transport participation in the shipping process), they actually require additional rolling stock. As a result, car productivity decreases two-fold in comparison with freight shipment in direct rail transport.

Let's examine the other negative factors connected with hauling freight in combined shipments with two transfers. Six freight-handling operations are performed on practically every ton of freight shipped using this transport scheme. In addition to the initial operation, loading, and the final operation, unloading, which must be done in direct rail shipment as well, the freight is reloaded from the car to a wharf and from the wharf to a ship at the initial transfer point, and it is reloaded from ship to wharf and from wharf to car at the second transfer point. At a number of ports, the proportion of freight currently reprocessed using the direct "car-ship, ship-car" variant is only 8-10 percent of all combined shipments. Even with the direct variant included, more than 40 million tons more freight per year is reloaded, with corresponding additional expenditures of electricity, diesel fuel and labor resources, and with the necessity of acquiring, installing and maintaining loading-unloading cranes and other mechanisms at the transfer points.

The freight being hauled is damaged, mixed up, crushed and reduced in quality by repeated transfers, often making it unuseable for its primary purpose and necessitating reconsignment to other consumers. Thus, for example, the Krivoy Rog GRES reconsigned 830 carloads of coal to other consumers for this reason in 1983, leading to significant transport losses due to the increase in hauling distance and considerable rail car idle time while the reconsignment issue was reviewed and a decision was being made. When timber is hauled with two transfers, the demand for labor resources increases sharply. People must be found at the transfer points to brace the cargo, both in the cars and on the docks, and also when unloading the cars and loading the ships. A similar demand for labor resources also arises at the second-transfer point. In view of the critical scarcity of lumber, consideration should also be given to the time involved in delivering this output. When timber is hauled by direct rail, it takes 6-8 days, depending on the distance, but the same shipment takes 20-25 days by combined shipment.

It should be stated that the increased time involved in delivering any output is of substantial importance, since it leads to increased commodity volumes in

transit and consequently to increased circulating capital. Calculations show that the value of in-transit commodity volume per 100,000 tons of freight hauled by combined shipment averages 61,000 rubles more than for direct rail transport. We should also add to this the increased energy expenditures for combined shipment.

#### Using Transport More Fully

Now let's examine the economic criteria for evaluating the effectiveness of combined shipments. Under the leadership of scientists specializing in river transport, the Institute of Complex Transport Problems (IKTP) attached to the USSR Gosplan has calculated the appropriateness of using combined shipments, including ones involving two transfers. The results were practically identical to those obtained by the VNIIZhT [All-Union Scientific Research Institute of Rail Transport].

At the same time, one cannot agree with the IKTP's recommendations. They are, after all, based on adjusted-expenditure calculations alone, and even though this indicator favors direct rail shipment, the margin is less than 5-10 percent, so the balance is considered appropriate for setting up combined shipment with two transfers. Not one of the physical indicators, to wit, river fleet utilization, rail car utilization, labor resources utilization, freight losses, increased in-transit freight volume, and a number of others, is analyzed or considered when choosing the shipment variant. How can one agree with irrecoverable losses of many thousands of tons of coal, even if it is assumed that their value is included in the adjusted expenditures? After all, the electric power plants need actual coal, not the value of the coal.

No consideration is given to losses of transport equipment due to the increased utilization of the rail car fleet or to the necessity of (re)shipping freight lost during combined shipments, which totals several hundred thousand tons per year. Moreover, one must not fail to take into account the inefficient use of the labor of several thousand workers engaged in artificially created transfer operations and the necessity of enlisting additional river transport workers, even given that expenditures on supporting them are taken into account in the wages portion of the adjusted expenditures.

These recommendations are also of doubtful use in economically substantiating combined shipments, in that they propose comparing a shipment variant involving two transfers to direct rail transport which assumes sufficient freight to utilize the existing fleet in direct water transport and in combined transport with a single transfer operation. The practical result is a justification of the current inefficient balances of freight shipments with two transfer operations. The system of calculations is reduced to examining the different choices of freight transfer ports in stages: from rail to water transport, and from water to rail.

For example, the IKTP used this as a basis for proposing the development and introduction of a system for setting up freight hauling by large pusher-driven consists on the Volga-Don line. Its implementation required replacement of the available self-propelled fleet with non self-propelled equipment, with one-time capital investments of (roughly) 300-350 million rubles. The impact

of this is to reduce the adjusted expenditures per ton of freight transferred by from only 0.3 to two rubles. Investing these same funds in developing railroad rolling stock and locomotives, however, would permit an annual increase of approximately 110-120 million tons in the hauling capability of rail transport. In our opinion, one must, in these cases, compare direct water or combined shipment involving a single transfer operation with direct rail transport, eliminating shipments with two transfer operations from the competing variants as being clearly disadvantageous.

Shipping apatite concentrate from the Kola Peninsula by combined shipment, transshipping it by water to the port of Medvezhyegorsk on Lake Onega and loading it onto rail transport in the ports of Astrakhan and Perm is another matter. The apatite is hauled to the port in specialized rolling stock for which only two ports, Medvezhyegorsk and Murmansk (seagoing, commercial), have the requisite unloading facilities. The rail car fleet which is designed to haul apatite concentrate in combined shipments to the port of Medvezhyegorsk cannot be used for direct rail hauling between navigation seasons.

At the same time, the question of increasing combined shipments of apatite through the port of Medvezhyegorsk is being examined. This would require significant supplementing of the fleet of specialized apatite haulers. What is more, this rolling stock would, given the current state of affairs, be excluded from productive work for half the year, and it would also complicate the operation of rail transport by occupying station tracks and limiting station switching capacity. Using transport equipment this way is a serious imposition on the national economy, and if one considers all the other negative consequences of combined shipments involving two transfers, it is not hard to see how expensive this would be to the state.

Calculations made by the State Institute of Rail Transport Feasibility Studies and Planning (GiprotransTEI), in conjunction with other scientific research organizations, on present and prospective combination apatite shipments involving two transfers have shown that the cost of delivering a ton of freight transshipped to the ports of Medvezhyegorsk and Astrakhan would be 10.4 rubles higher than direct rail transport for the "Azot" production association in Nevinnomys, 10.37 rubles higher for the Mangyshlak Mineral Fertilizers Plant and 9.75 rubles higher for the Sumgait Superphosphates Plant imeni 60th Anniversary of the USSR. Apatite shipments involving transfers in the ports of Medvezhyegorsk and Perm would also lead to cost increases of 10 rubles per ton of freight hauled.

Obviously, such shipments need to be decreased, not increased. The only appropriate combined-shipment hauling of apatite would be directly to the "Ammofos" production wharf in Cherepovets. The funds which would have been spent to increase combined shipments of apatite concentrate should be directed into developing the throughput of railroad lines now shipping the apatite.

The appropriateness of installing a transshipment complex for apatite at the port of Astrakhan should be examined separately. A significant portion of the concentrate being transferred to cars in Astrakhan is then sent 1,200 km around the Caspian Sea on the high-density Astrakhan - Makat - Beyneu line to the Mangyshlak Mineral Fertilizers Plant.

This enterprise is right on the seacoast and has its own wharf. Its annual apatite demand is several times the processing capacity of the Astrakhan transshipment complex. The advantage of installing this complex at Mangyshlak rather than at Astrakhan is obvious. Shipments of apatite by water from the port of Medvezhyegorsk directly to the recipient's wharf without additional transfers or rail transport participation would be immeasurably more efficient in all respects.

The Belorussian system for hauling gravel and other building materials produced by the "Granit" production association in Mikashevichi is an example of the intelligent, efficient use of river transport. The association's transport shop began developing simultaneously with preparations to mine and produce the output, when installation of a port far from water was begun and when work was simultaneously begun on installing a seven-kilometer canal from the Pripyat River. Currently, all the republic's southern regions from Gomel to Brest are being supplied with building materials by river transport, without the participation of rail transport. These shipments are increasing annually.

But how can one accept a situation in which hundreds of large "freight-generating" enterprises are situated immediately adjacent to large waterways, but their transport support is oriented entirely towards railroads. The transport support for the pulp and paper combines, practically all of which are situated "on the water," from the southernmost ones in Astrakhan to the northernmost ones in Arkhangelsk, is a graphic example of underestimating the possibilities of river transport. Besides these enterprises, there are other TSBK [pulp and paper combines] on the connecting waterways in the European portion of the country: Priozersk, Kondopozh, Segezha, Solikamsk, Perm, Mariinsk, Balakhna, Kotlas, Syktyvkar, and a number of others.

These enterprises produce primarily paper and cardboard. Their primary customers are the large book and newspaper printing centers located on these same waterways: Moscow, Leningrad, Kalinin, Gorkiy, Kuybyshev, Perm, Saratov, Volgograd and others. All TSBK's are energy-intensive enterprises and hence major consumers of fuel. They bring in a great deal of wood pulp every year. The possibility of using the fleet in both directions is obvious: to haul in a year's worth of coal to the TSBK wharves and to haul out finished products to consumers in river regions during the navigation season.

These enterprises bring in more than 200,000 tons of sodium sulfate by rail annually. This output travels a unique path before reaching the consumer: it is loaded onto oceangoing ships in the port of Bekdash and delivered to Makhachkala, Baku and Krasnovodsk, where it is transferred to rail cars and hauled by rail to TSBK's on the rivers.

Water would seem to be the obvious way of providing the bulk of the transport support for these enterprises, bringing fuel and pulpwood to the TSBK's by river and shipping out finished paper products, thus providing an opportunity to use the river fleet efficiently. But commercial wharves would need to be built at the pulp and paper combines in order to make these shipments by water.



Setting up shipments of automotive equipment by river from enterprises of the Ministry of Automotive Industry is also promising. After all, a majority of them are located on navigable waterways and have their own ports or wharves. This includes such major automotive plants as the Kama, Gorkiy, Volga, Ulyanovsk, Pavlovsk, and the Moscow plants imeni I. A. Likhachev and imeni Lenin Komsomol. Because this output is self-propelled, if the plants are not in ports, it would be possible to drive to general-use ports or to consumers in the river regions, as well as to neighboring oblasts. Separate, specialized ports would be appropriate for concentrating and properly monitoring vehicle shipments. In particular, such ports would be appropriate at Ust-Donets or Rostov-on-Don in the south and at the port of Vashiny, now under construction, in the north, as economically appropriate freight traffic have yet to be found to utilize it fully. Let's add the fact that shipping vehicles by river transport guarantees that they will not be dismantled en route, since it eliminates the possibility that unauthorized persons will have access to them.

At present, many trucks must be driven 2,000-4,000 km from the manufacturing plants due to the shortage of railroad rolling stock. Calculations by the VNIIZhT also confirm the appropriateness of shipping vehicles by river transport.

The "Uralkaliy" and "Silvinit" production associations, which produce large quantities of potassium chloride and industrial salt, are located right on navigable waterways. Rail transport experiences tremendous difficulties in hauling out this output. At the same time, waterways are used extremely inadequately for hauling potassium chloride. In 1985, for example, the amount shipped by river was 10,000 tons less than in 1973. Tens of thousands of tons of this output is hauled by rail to Cherepovets for the "Ammofos" production association each year, while both enterprises are located on connecting waterways and have their own wharves. This is a very suitable area of application for water transport. In fact, direct, non-transfer shipments from the originator's wharf to the recipient's wharf must be the basis for using it.

River transport is not exhibiting the necessary activeness in hauling many types of freight, and especially grain, sugar and pipe, from seaports to riverports in the interior. The Cherepovets commercial port has long needed renovation. Its participation in meeting the transport needs of the Cherepovets Metallurgical Combine imeni 50th Anniversary of the USSR does not meet current requirements. For this reason, millions of tons of freight is hauled to and from this enterprise by rail during the navigation season.

The river transport workers' assistance in resolving transport problems at the "Azovstal" metallurgical combine in Zhdanov has been clearly inadequate. Commercial wharves are needed at a number of Ukrainian enterprises on the Dniepr, where the navigation period is 10 months long and where it may be year-around in the future.

These are only isolated examples of appropriate river transport applications. In view of the differences in transport expenditures for hauling by rail and

by river in the European basin, it would be appropriate to develop a program obligating the branch ministries to orient transport support for specific enterprises to water transport due to their geographic location and nature of production.

#### Utilizing Capacities Effectively

In order to utilize water transport better, we need to develop and build more enterprise wharves and commercial ports. This will permit higher non-transfer shipment volumes. The goal of eliminating transshipments is supported by domestic and international experience. To this end, considerable sums are being spent to build ferry facilities and ferryboats. Ferries are being operated between Ilichevsk and Varna, Baku and Krasnovodsk, Vanino and Kholmsk.

At the same time, such large ports as Kuybyshev, Syzran, Yaroslavl, Ust-Donets and others are currently underutilized due to discrepancies in the development of river transport facilities in the European and Eastern basins. There are no economically appropriate types of cargo to utilize the riverports being built and renovated in Vazhiny, Kambarka, Dmitrov, Temryuk, Perm and elsewhere.

At the same time, 2,000-4,000 rail cars stand idle on each of the East Siberian and Krasnoyarsk railroads for a total of 20 days during the navigation season due to the limited ability of the Lena River basin transport system to transfer freight to river transport through the port of Osetrovo.

This not only takes railroad rolling stock out of productive circulation. It also complicates the transit car-traffic throughput throughout the Transsib system. Even with this extraordinary availability of cars and broad assortment of freight, freight-hauling assignments are not being met out in the Yakutsk ASSR. After the navigation season ends, hundreds of thousands of tons of a variety of freight urgently needed by the northern economy remains in warehouses in the port of Osetrovo. Urgently needed goods and equipment are hauled by motor transport to year-around residents thousands of kilometers from Osetrovo, at a high cost in petroleum products. Some of the freight is delivered to Yakutsk by air. It isn't hard to imagine the many-fold increase in the cost of shipping it.

In the 12th Five-Year Plan, the rates of growth in productive forces will be increased significantly in this region, and a sharp growth in the capacities of the Lena River basin will consequently be required, the more so in view of the fact that the "Osetrovo Problem" has long since ceased to be a transport problem and is now a problem of statewide importance. It should be noted that the plans on hand for developing the port of Osetrovo and strengthening the transport base of the Lena basin in no way solve the problems of utilizing the ever-growing volume of freight shipments for the Yakutsk ASSR. There is a critical shortage of refrigerator ships in the basin. Therefore, hundreds of expensive refrigerator cars with perishable freight stand idle for 60-90 days waiting for ships to arrive. This unquestionably leads to reduced quality in the produce being shipped and to spoilage. The problem of supplementing the Lena steamship line with specialized "river-sea" combined-transport

vessels to haul cargo to the Arctic river basins remains unsolved. The fleet shipping dry cargo also needs to be supplemented.

The inadequate number of common-use points for receiving and shipping out cargo in containers does not facilitate increasing containerized shipments or accelerating the return of containers to rail transport. The necessity of developing these points also results from the 1985 start-up of a new container terminal in the port of Osetrovo. On the whole, the rates of growth in the processing capacities at the port of Osetrovo and the development of the warehouse system for both open-storage and enclosed-storage cargo lags considerably behind the demands of the national economy in terms of volume of cargo to be brought into this economic region, in which waterways are the only possible means of transporting cargo on a large scale.

The RSFSR Ministry of the River Fleet has opportunities for resolving these and other problems. However, they are not being used as intended: new river-fleet capacities are being created in the European basin to set up the combined rail-river cargo shipments with two transfer operations. Unfortunately, the exact same trend is also preserved by the RSFSR Ministry of the River Fleet in its plans for the 12th Five-Year Plan. At the same time, in view of the prospect that the freight flow through the port of Osetrovo and the transit flow on the BAM will grow, it is now necessary that the development of Lena Station and this important rail junction as a whole be accelerated.

Strengthening the opportunities of the Lena River basin will not conflict with construction of the railroad to Yakutsk, but will only substantively and effectively supplement this important step towards improving transport support for the region. First, the railroad now being built to Yakutsk will not permit direct shipments to all regions of the republic. Second, creation of the necessary transport facilities in the Lena basin will supply the Arctic coast from Khatanga River to the port of Pevek, as well as consumers located in the basins of the Arctic's Yana, Kolyma and Indigirka rivers using "river-sea" combined-shipment vessels from the Osetrovo or Yakutsk riverports during favorable weather. At present, the Arctic coast of Yakutia is basically supplied by the Northern Sea Route, through northwestern and Far Eastern ports. Everyone remembers the difficulties of navigating the Arctic in 1983, when dozens of oceangoing ships were imprisoned by the ice and many were seriously damaged. Resolution of the problem of providing full transport support for these regions from the Lena River will also significantly cut the time involved in delivering cargo, which is especially important when bringing in fresh vegetables and other perishables.

In order to compare in graphic fashion the effectiveness of supplying the Arctic coast of Yakutia by sea and by river, on the Lena, let's analyze how cargo would be hauled to the port of Zelenyy Mys. The commercial and sea ports could be specialized to handle large shipments to here from the European USSR, by rail to the port of Leningrad and then by sea around Scandinavia, and finally by the Northern Sea Route.

At the same time, delivering this cargo by gondola car to the Osetrovo riverport looks very promising, since that would coincide with the return

route for empties, and these same cars could haul back Neryungri coal or timber from the East Siberian Railroad. Hauling freight to the port of Zelenyy Mys and a number of other Arctic places from the Lena River also seems considerably more efficient than delivering it through the Far Eastern ports. The rolling stock would not run within 4,000 km of the port of Osetrovo and could be used in this region to pick up freight for the return run.

However, due to the limited capacity of river transport in this basin, freight for a number of consumers in Yakutsk itself would be brought in by the Northern Sea Route to the port of Tiksi and then transferred to river ships. For example, this route would be followed to bring corrugated asbestos board from the Spasskiy Asbestos Cement Products Combine, radiators and other materials and equipment, to Yakutsk.

The cost of delivering a ton of corrugated asbestos board from the Spasskiy combine by sea is 13 times higher than that of hauling it through the port of Osetrovo. Only extreme necessity would force freight shippers to use this route, since they must choose whether or not the delivery is to be made.

Increasing the effectiveness of combined shipments is also closely linked to the problem of distributing intelligently the funds being allocated to develop transport. The facts testify to an extraordinarily large allocation of funds to develop river transport. This situation is apparently to be explained by the effort by planning agencies to increase the proportion of water shipments. For example, the press pointed out three years ago the inappropriateness of building the port of Vazhiny on the Svir River. However, it was only this year that the USSR Ministry of the River Fleet acknowledged the inappropriateness of this construction project, after it was completed. The cost of building this port alone was many tens of millions of rubles. Isn't it time to set this problem straight and hold people strictly accountable for the mistakes they permit?

We lack sufficient objective conditions for increasing the proportion of shipments by water in overall transport operation.

The country is stretching out from West to East, and the movement of the main freight traffic is in this direction. At the same time, the navigable river basins are generally North to South or South to North and are only navigable for very limited periods. Due to the shipment distances and delivery times, it is inappropriate to link the Black-Azov sea basin to the Northwest sea basin and both basins to the Far East basin by full-time, large-scale shipments. It can be concluded from this that the question of this country's basic transport support will continue to be decided in favor of rail transport.

The existing situation with regard to setting up combined shipments demonstrates that the interaction among the various types of transport and the "branch" policy being implemented require fundamental restructuring. We face the necessity of creating a coordinating body which would determine the prospects for developing the various types of transport based on state interests. In a word, the problems of the efficient use of capital and the interaction of rail and water transport are still far from having been solved,



in spite of the steps being taken and the efforts being made. Active, business-like participation by the transport ministries, the planning and supply agencies, and the freight originators and recipients, is very important to solving them.

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## RAIL SYSTEMS

### MINISTER KONAREV ON RAILWAYS SECTOR ACHIEVEMENTS

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[Article by N. S. Konarev, USSR Minister of Railways: "Rail Transport: To New Frontiers"]

[Text] The junction of two years is a time to sum up results, critically interpret what has been done, and define new tasks and plans for the coming year and for the future. The year 1986, which is ending, was the year of the 27th CPSU Congress and the first year of the 12th Five-Year Plan. It has become the beginning of a serious and -- it is possible to say -- a revolutionary restructuring and of a radical and profound transformation in the economic, political and social spheres. A resolute course has been taken toward accelerating the country's social and economic development, toward renewing public life, and toward the effective use of socialism's enormous potential. The first fruits and the first results of the enormous creative work, which is being performed by our party's Central Committee, are already present.

The economy has begun to develop much more dynamically, and the highest growth rates during the Eighties in industrial and agricultural production and in national income have been achieved. The Soviet people have insured the confident and energetic start of the 12th Five-Year Plan through their fruitful and constructive labor and through their creative attitude toward the task. Soviet railroad workers have made their important contribution to these common achievements of our people.

The annual freight shipment plan was completed on 23 December, eight days ahead of schedule. Four billion tons of products were dispatched on 25 December for the first time in the history of rail transport. Another 65 million tons of freight will be delivered before the end of the month. In comparison with 1985, the shipping volume will grow by more than 130 million tons. The passenger turn-over plan will be exceeded by approximately 13 billion passenger-kilometers. World practices know no steel mainline work scales and no increase like this. Not only the planning targets but also the majority of the socialist obligations of the branch workers will be significantly exceeded.

And what is very important -- the quality of the national economy's transport services has been improved. The overwhelming majority of product types are

being exported in a timely fashion. Many millions of tons of coal, ore and metallurgy raw materials, grain, chemical and mineral fertilizers, and other freight will be transported above the plan. At the same time, the plan for shipping lumber materials, which many enterprises and construction sites now need so much, was not fulfilled. The lagging behind in this freight is appreciable, and it is necessary for us -- the railroad workers -- and the forestry workers to put both the planning and the organization of the task in order.

Having assigned themselves the task of moving by the end of the present five-year plan to the highest frontiers in the world not only for volume but also for the most important qualitative and economic indicators, Soviet railroad workers are confidently marching toward their planned goal.

Labor productivity grew by 7.7 percent during the year. This means that the planning target was exceeded 3.7-fold. Shipping costs will be reduced by 2.5 percent. The profit over and above the plan will exceed 420 million rubles.

These impressive achievements are the result of the large-scale reorganization that is taking place in the branch, the intensification of the production processes, and the forced introduction of the achievements of scientific and technical progress and progressive experience. First of all, there is the Belorussian method that has truly become a revolutionary step in improving the economic mechanism. The state importance of this initiative and the innovative attitude that has been displayed by labor collectives toward the task received a high rating during the 27th party congress and the June 1986 CPSU Central Committee Plenum.

More than 126,000 people have been freed for other work on the 11 railroads and two subways that are working using the new method. Here, labor productivity has been raised by more than 12 percent. About a million workers and employees have received an increase of 26 rubles a month in their wages on average. Labor and technological discipline has been strengthened significantly. Losses of work time have been reduced by more than a third, and overtime work has been curtailed by 17 percent.

When spreading the Belorussian method, special attention must be paid to those shortcomings which, unfortunately, have been tolerated in a number of places. Not everywhere have economic directors relied on the collective during the reorganization, consulted with people, and taken public opinion into consideration. At times, they have acted in a routine way and approached the task and the people in a formal manner and without spirit.

It is necessary to set out a firm covering detachment against any displays of formalism and wilfulness on the part of zealous executives and against a bureaucratic approach to the task. Everything must be comprehensively and thoroughly thought out and weighed. I consider it necessary to emphasize this again now. You see, all railroads, subways and many transport enterprises and organizations will convert to new management methods, an organic part of which is the Belorussian experience.

We are not talking about a partial improvement but about a serious reorganization of management methods. For this, each commander, specialist and worker must learn to think economically and -- what is the main thing -- act in a corresponding manner. We are faced with a complicated psychological restructuring, and the inertia, which has accumulated for years, is not going to be overcome easily. However, we already have a certain amount of experience in this restructuring. The collectives of two large railroads -- the Southwestern and the Dnepr -- have worked under the new management conditions for almost a year.

During the conducting of the experiment here, they managed to adjust the new management mechanism and to solve many questions that arose. And what is the main thing -- we were convinced that a significant expansion of the independence of enterprise and subunit collectives, an increase in responsibility for the fulfillment of shipping plans for all types of freight, a strengthening of the railroad workers material incentives for final work results -- these are effective levers which will help to raise the effectiveness and quality of all our activity and to solve successfully the tasks that have been assigned to the branch by the 27th CPSU Congress. The preliminary work results of the Dnepr and Southwestern main lines provide every justification for this conclusion.

In principle, the ways to further improve management methods are clear. Ahead of us lies the shift to full cost accounting, self-financing and self-compensation. Taking the specific nature of our transport into consideration, it is necessary to solve a large set of questions. The Belorussian Railroad collective has again demonstrated very important initiative, it has come out with a proposal to transfer the main line to self-financing in 1987. I am confident that the new experiment will -- as they say -- be within the capability of this outstanding collective. It is now necessary to develop all of the required methodological materials as rapidly as possible.

The restructuring of management methods should inspire them to improve work organization and procedures more energetically and resolutely, accelerate technical progress in the branch, and conduct the affair zealously and economically -- and, of course, contribute to the establishment of the best working and living conditions for the railroad workers and to an increase in their prosperity.

The introduction of intensive procedures, especially the development of heavy and high-speed trains, and the improvement in the organization of shipments permitted us to increase the level of operational work during 1986. This had a positive effect on the use of transport's technical assets, especially the rolling stock. The transfer of cars at junction points grew significantly. Experience has convincingly proven that the transfer of 400,000 cars a day is not the limit. It is expected that the turnover of a car will be accelerated by two hours as opposed to the target. As a result, the pool will manage to transport more than an additional 43 million tons of freight a year.



In no case should one be seduced by what has been achieved in improving the qualitative indicators. We have not managed to reach the planned high frontiers for such important indicators as the average weight of a train and the static load of a car. The average weight grew by 63 tons during the year when it was planned to raise it to 100. The static load will increase by approximately 180 kilograms, but the goal was to take a higher frontier. There are very many non-functioning reserves in improving the use of locomotives. The target for their average daily productivity was not realized by 3.7 percent.

How much are we losing because of disruptions in work rhythm? The amounts of loading and unloading slump sharply during the first half of the day and on days-off and holidays. Arrhythmia during the initial and final stages of the shipping process and errors in organizing operational work lead to the fact that the level of fulfillment of freight train movement schedules is only 73 percent -- although it is well known that the schedule is our chief technological document that permits shipments to be organized accurately and the efforts of railroad workers in all the basic professions to be coordinated.

Far from everywhere are lessons being drawn from the defeats during past severe winters. The shortcomings in the preparation of facilities and personnel for this difficult work period were not slow in being felt. On a number of railroads that were in the area of heavy frost, snow-falls and snow-storms, the passage of railroad car traffic was sharply delayed during the second half of December. Up to 18,000 cars with frozen cargo piled up on sidings and on the approaches to them. Unloading was slowed down, and the loading rate fell. The ministry took decisive steps. Now, the matter depends on how they realize on the spot everything that has been planned and restore an accurate work rhythm rapidly.

I always try to follow attentively the mail that arrives in the ministry. The letters, complaints and requests from the railroad workers are a distinctive barometer of the state of affairs on the lines. They are also -- as they now say -- a feedback that helps one to judge about the efficiency and effectiveness of the decisions adopted by us. Some letters make one happy; others grieve one. It is always unpleasant and even painful to read complaints from passengers. Their flow is still great and is decreasing very slowly.

People justifiably complain about the innumerable delays in passenger trains. Several passengers write: "Well, a long distance train is delayed -- very well. It made a trip of several days; something could have happened somewhere on the way. However, why are dozens of electric trains late almost daily in the capital's suburbs under the nose of the Ministry of Railways? Thousands and thousands of people are late for work. Their mood is spoiled. And what is their productivity after this? What losses does all this cause for our state?" Complaints arrive about the long lines near the ticket agent's office, especially during the peak of passenger travel, and about the poor information in train stations. People write with annoyance about the disgraceful preparation of consists for a trip and about the rudeness of conductors.

We have reorganized the passenger transportation management system, but the results, which we expected from this, still have not materialized. Evidently, we have still not achieved the desired changes in the consciousness of people who are directly connected with servicing passengers in train stations and on trains. This is the main thing. Without it, we will not incorporate the required order everywhere and we will not create genuine service for passengers. It is necessary to concentrate our attention on organizational and indoctrinational work and on the selection and training of dependable personnel.

It is well known that success is achieved where business-like efficiency, boldness and strength of will are actively displayed; where people act purposefully, creatively and in a well thought-out manner; where they make decisions depending on the specific conditions; and where the masses of railroad workers are skilfully involved in a constructive process. We suffer defeats where complacency reigns, where they work listlessly, where they do not hurry to assume responsibility on themselves, where they calmly close their eyes to very gross violations of discipline, and where they resign themselves to slovenliness. The very serious defeats, which we have suffered during this out-going year as a result of passenger train wrecks, graphically testify to this.

During accident investigations, it happens that you ask railroad or division directors: What was the main reason? Who is the main guilty party? And in reply you hear: The engineer fell asleep, or the man on duty at the station prepared the route incorrectly, or the track workers did not replace the rails in time. You begin to delve into the details and it turns out that there is a whole chain of rules violations, errors and mistakes that end at times in the main administration of the ministry. Workers and commanders in several services prove to be involved in accidents. The inspection staff has looked through its fingers at the shocking things that have been caused by them. High principles have not been displayed even during the investigation of wrecks.

Railroad workers know that trouble has been revealed in Koristovka. An engineer and his assistant displayed criminal negligence -- they fell asleep on a locomotive. You see, however, the automatic stop did not work. How was the arrival of two passenger trains organized? What procedures exist in a depot, in a division and on a railroad avenue. This is only one feature on an unpleasant picture. It turns out that the former chief of the locomotive service of the Odessa Railroad, whose facilities have one of the highest accident rates on the network, had received the "Honored Railroad Worker" badge not long before the wreck. Where -- you ask -- were the directors of the railroad, the Ministry of Railways Locomotives Main Administration and -- yes -- the Personnel Main Administration, who had recommended this individual for the award, looking?

The guaranteeing of complete movement safety for trains is the primary duty and sacred obligation of railroad workers. All of us -- from the track worker to the Minister -- are answerable for this. The Ministry of Railways Collegium intends to wage a very resolute battle against any displays of formalism and bureaucratism in this very important task and to do everything to prevent accidents and not seek to shift the blame on to someone when one occurs. The task can be posed to production commanders, specialists and inspecting staff only in this way. First of all, it is necessary to surround ourselves with

genuine concern and attention toward the people on whom traffic safety especially depends. In the first place, they must establish normal working and rest conditions in the shortest possible time. If, for example there is nowhere -- as it appears -- for an engineer to rest before a trip -- this is a potential menace of an accident. It would be hypocritical to close one's eyes to this.

The state and the Soviet people have entrusted us, the railroad workers with the country's main conveyor. The successful activity of the national economy depends a great deal on its accurate and uninterrupted functioning. Our steel main lines are performing a colossal amount of work. Each day, 11 million tons of freight are transported and more than 12 million passengers are sent on their way. More than 53 percent of the world's freight turnover on rail-lines and approximately a quarter of the passenger turnover occurs on Soviet railroads.

During the new year of 1987, it is necessary to organize a significant increase in shipments and to achieve this with fewer expenditures of labor, financial and material resources. Having weighed its capabilities, the ministry has outlined the following main frontiers for the second year of the five-year plan:

To bring the dispatching of freight to 4.15 billion tons, that is, to exceed the planning target by 60 million tons. To increase passenger turnover to 396 billion passenger-kilometers, exceeding that planned by 10 billion. To increase labor productivity by seven-eight percent. To decrease shipping costs by two percent. To obtain 300 million rubles of profit over and above the plan.

Just as during the year that is ending, we intend to concentrate our main efforts on solving a triune task. Let me recall its essence.

First. To insure the complete and timely satisfaction of the needs of the national economy and the population for transport. To fulfill loading plans for the entire range of products accurately. Not to tolerate the failure to remove products from enterprises. Without a doubt, the directors and specialists of railroads, divisions, stations, and industrial rail transport enterprises must have a good knowledge of the economy of the regions being served; skilfully arrange coordination with the workers on sidings and other types of transport; and see to it that shipment plans are realistic in order for this to be done. This is extremely important under the new management conditions.

Railroad workers continuously complain -- and justifiably -- that enterprises, associations and ministries overstate the actual requirement for transporting products in their plans. Let us think, however, about where the root of this evil lies. I am confident that there has been a shortage in shipments for years. Fearing that the railroad workers will not supply the required number of cars, clients have been trained to plan by overestimating or -- as they say -- by requesting more. It is only possible to break this stereotype of thinking by completely satisfying all requirements for transport. We must do this.

Second. Based on the intensification of production, the acceleration of scientific and technical progress and a radical improvement in shipping procedures

and organization, to increase the effectiveness of all transport operations so as to move to the highest frontiers in the world by the end of the 12th Five-Year Plan based on the main qualitative and economic indicators, especially labor productivity. Proceeding from this, concrete indicators, which must be achieved, have been defined:

To increase the average weight of a train to 100 tons. To raise the static load of a car by 400 kilograms. To speed up the turnover of a car by 6.5 hours. To increase the productivity of a locomotive by 35,000 ton-kilometers gross. To bring the inter-railroad transfer to 405,000 - 415,000 cars a day.

It is necessary to determine specific frontiers for all of the main indicators for each railroad, division, enterprise, shift, shop, and brigade. Each railroad worker must know what he must personally and specifically do during the coming year for the common success. It is necessary to determine a program accurately for each link in our multifaceted economy and for each worker. It is necessary to do this in the shortest possible time.

Third. To improve rail workers' prosperity significantly basically by means of intrabranh sources. We have already talked about these sources. They consist of the transfer of the branch to the new management conditions and the introduction of the Belorussian experience everywhere. The majority of railroad workers will receive a sizable addition to their wages. The construction of housing, children's establishments, polyclinics, hospitals, trade enterprises, public eating establishments, clubs, and sports installations is being accelerated. Assets from the fund for social and cultural measures and housing construction will now be used on a significantly broader basis for these purposes.

In mobilizing reserves and placing them at the service of the five-year plan, we cannot fail to think about tomorrow and about the future. This requires indefatigable attention toward the development and introduction of fundamentally new equipment and procedures, the expansion of the steel mainline network and all facilities, and the building-up of the power and carrying and through-put capacities of lines and entire avenues.

We have developed a set of special purpose programs for scientific and technical progress. It is a matter of persistently and consistently implementing them. The role of our scientists, specialists and production innovators is great here. Here is a very wide field for applying their creative forces.

Under the conditions of the enormous train traffic intensity, the automation of the transport process management is acquiring special significance. Without this, it is now simply impossible to effectively manage such a complicated closely compacted and interconnected economy such as ours -- the railroads.

In the very near future, it is necessary to begin building in the Ministry of Railways an automated center for managing the operational work of the railroads. The dispatch management center, which has been established in Donetsk, is a prototype of these systems at the railroad level.



Electronics and computer equipment are transforming the labor of workers in many of our leading professions. During the coming year, the widespread incorporation of automated work positions for train dispatchers, station and depot duty attendants, and the operators of technical and commodity offices will begin. Once one has pushed several buttons, it will be possible to receive the necessary information and to game complicated situations so as to select the optimum solution. Thus, a single system for the automated control of the transport process, which embraces all levels, is being developed.

It is difficult to over-estimate the importance of the programs for the complex mechanization and automation of labor-intensive processes for the successful work of transport and for the solving of social tasks. Not only the further growth in labor productivity and the reliability of technical systems but also the appointing of personnel and the raising of the prestige of the railroad professions will depend a great deal on its practical realization.

There is no need to prove how important it is to organize capital construction well. Without it, the successful building-up of capacities and a radical improvement in the working and living conditions of the railroad workers are simply impossible. Unfortunately during the year which is ending, we did not manage to achieve a serious reorganization in capital construction. The state of affairs is improving extremely slowly here. The shortfall in assimilating capital investments reached 97 million rubles during the past 11 months. The commissioning of a number of production projects is not being assured and -- what is completely intolerable -- the assets, which the state has allocated for the construction of housing and various social and consumer projects, are not being completely used.

When speaking about the strategy of capital investments, it is necessary to state that we have still not achieved the required concentration of forces and assets so that the projects will be constructed within the periods established by the norms. We are suffering extremely significant losses because of numerous extended construction projects. There are still quite a few errors in capital investment planning itself. As a result of the lack of balance between the commissioned production capacities and the development of the social area, it at times turns out that there is no one to work at the newly erected project. For example, it happened like this on the Pogromnoye-Pugachevsk Line during the expansion of the Sarepta depot on the Volga Railroad and in a number of other places.

The organization of construction work itself requires serious improvement. In this matter, we still have many large shortcomings and unsolved questions. It seems that the railroads and construction sites cannot give up obsolete approaches that are of little effect. The brigade contract and other advanced forms for organizing and stimulating labor are being incorporated intolerably slowly. Close cooperation and coordination with construction organizations has not been arranged on many railroads and in our enterprises. This is having a negative effect both on the rates and the quality of work and is leading to an increase in material, labor and financial expenditures. Generally speaking, decisive changes are required in our capital construction. Without this, it will be impossible to carry out successfully the large program of work that has been provided for during 1987 and during the entire 12th Five-Year Plan.

As is known, during the five-year plan, it is planned to lay 2,700 kilometers of new lines and 4,000 kilometers of additional main track and to electrify 8,000 kilometers of road. It is necessary to carry out an enormous amount of work to reconstruct our stations, plants, depots, and other enterprises. We have assigned ourselves the task of constructing 200,000 apartments for railroad workers during the five-year plan. It is mandatory that this task must be solved.

Only a few days remain until the end of 1986. Our primary task is to complete it in an urgent manner. Ahead are the second year of the five-year plan, the bulk of new and very important deeds, and a great deal of constructive and creative work. I would like to congratulate from my heart all of the railroad workers and their family members on the coming New Year and wish them good health, happiness and new and important achievements for the glory of our great native land.

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## RAIL SYSTEMS

### TRENDS IN SOVIET ELECTRIC LOCOMOTIVE PRODUCTION

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[Article by Candidate of Technical Sciences I. V. Skogorev (Novocherkassk), Deputy Director of VELNII [All-Union Scientific Research, Planning, Design and Technological Institute of Electric Locomotive Building]: "Mainline Electric Locomotives Today and Tomorrow"]

[Text] Our rail transport is in a period of intensive electrification, as electric rolling stock is becoming the main type of traction. In this connection, electric locomotive builders must ensure the release of sufficient locomotives with good traction-electrical parameters which will meet the railroads' demands both now and in the future.

The main parameters of the electric locomotives being produced today and being developed for the very near future are determined by mainline electric locomotives standards developed jointly by the Ministry of Electrical Equipment Industry and Ministry of Railways and approved by the USSR State Committee for Science and Technology. Electric locomotive plants are currently producing 6,250-kW VL80S and VL80R eight-axle a.c. locomotives in conformity with these standards. The first, which has diode rectifiers, is equipped with a multiple-unit system and rheostatic braking. The second has continuously variable thyristor control and an automated braking control system. The VL10U and VL11 5,360-kW eight-axle a.c. electric locomotives currently in production have regenerative braking.

Until recently, the tractive power of eight-axle electric locomotives was adequate for trains weighing 3,600 to 3,800 tons. With trains weighing 6,000 tons or more now being used, it has become necessary to sharply increase electric locomotive tractive power as well. The first electric locomotive to haul such trains was the dual-traction VL80S, but its power was underutilized in this application. Electric locomotive builders did the modernizing necessary to permit operation of these locomotives in multiple-unit systems consisting of three or four sections controlled by a single locomotive brigade from the cab of the lead section. Series production of these locomotives was achieved in 1983. The VL11, which is capable of three-section operation, was built and is being series-produced to haul heavy consists on d.c. test tracks.

Table 1.

parameters	electric locomotive		
	VL80S	VL80R	VL85
one hour's operation:			
power, kW	6,520	6,520	10,000
tractive force, kH	442	442	726
speed, km/hr	51.6	51.6	49.1
efficiency	0.84	0.84	0.86
electric brakes	rheostatic	regenerative	regenerative
braking force at 80 km/hr, in kH	270	225	430
specific materials intensive- ness, excl. ballast, kg/kH	426	426	384
specific labor intensiveness of manufacture, norm-hr/kH	66	79	55

Industry has now developed and manufactured two-section 12-axle a.c. and d.c. electric locomotives to replace the three-section 12-axle units. The parameters of the VL85 a.c. electric locomotive are superior to those of its predecessors, the VL80S and VL80R (Table 1). Along with improving the traction and electrical properties of the electric traction system and lowering manufacturing materials and labor expenditures, the development of this locomotive also solved a separate, major problem, that of developing materials and components ensuring reliable traction in a very cold climate, where the ambient temperature falls to -60 degrees C. The complexity of the problem was aggravated by the fact that the undercarriage has to be designed for higher stresses than eight-axle electric locomotives. For example, the allowable compression and elongation force at the automatic couplers was increased from 2,500 to 3,000 kH.

The VL85 fears neither drifts nor snowstorms, neither rain nor dust storms. The centrifugal air-cleaner fans used on it ensure that more than 90 percent of the snow and more than 50 percent of the dust will be removed from the ventilation air, and the louvred air cleaner does not allow water to reach the electrical equipment, even in the heaviest rain. Partial cooling air recirculation also permits improved electrical equipment operating conditions within the cab by raising the air temperature in it.

Working conditions for the locomotive crews have been significantly improved. The cab is 25 percent larger, the engineer's control panel is ergonomically designed, cab insulation has been beefed up, larger electric heaters are used, and a refrigerator and air conditioning are available. The work of the locomotive crews is also made easier by the use of automatic equipment which enables the train to accelerate to a preset speed without engineer involvement by selecting the proper traction engine current and maintaining that speed. During regeneration, the automatic system ensures preliminary light braking and maintaining a preset emergency braking force and a preset speed on downgrades. The design also limits the maximum traction engine current and protects the electrical equipment in emergencies by switching off the drive impulses from the inverter-rectifier transformer thyristors.



A back-up manual control system is incorporated to improve the "survivability" of the electric locomotive, enabling the engineer to assume control himself at any given moment. Practically all the basic equipment is modularized, a progressive design which reduces assembly labor intensiveness and reduces maintenance time significantly. Many VL85 electric locomotive subassemblies and parts are compatible with those used in the VL80S and VL80R: unitization is 77 percent. A number of new subassemblies (traction engines, truck frames and others) will be able to be used on eight-axle electric locomotives as well once they are in series production.

Table 2.

parameters	electric locomotives		
	VL10	VL11	VL15
one hour's operation:			
power, kW	5,360	5,360	9,000
tractive force, kH	387	387	676
speed, km/hr	48.7	48.7	46.0
specific materials intensive-			
ness, kg/kH	470	470	420
efficiency	88	88	88
regeneration exciter	rotating	rotating	static

Table 2 shows the characteristics of the two-section 12-axle d.c. VL15 in comparison with its predecessors. The VL15 electric locomotive also differs from the VL11 in that its circuitry permits operation in non-rheostat positions in the entire range of speeds and tractive forces achieved most often. The static regeneration exciter permits improved braking.

The new electric locomotives are just beginning series production, but a new locomotive is already being readied to replace them, a 12-axle a.c. electric locomotive with 11,400-kW induction traction engines and an automated control system and regenerative braking. This electric locomotive is being developed in two versions, one with oil-cooled semiconductor power units and one with air-cooled units. The first is being developed jointly by the VEI NII and a branch of the "Kumi-Stremberg" company of Finland, and the second is being developed jointly with domestic scientific research organizations. The VL86F oil-cooled electric locomotive manufactured in 1985 at the Novocherkassk Electric Locomotive Plant is now being tested.

A locomotive with induction traction engines has a number of advantages over traditional electric locomotives with commutator motors. First of all, this electric locomotive can be multipurpose because of its ability to use the rated power of the engine over its entire range of speeds, up to and including its designed speed. For the same power output, the induction traction motor weighs 10-15 percent less than a commutator motor. This eliminates restrictions on switching conditions and on the mechanical strength of the commutator. Moreover, because there is no commutator, the traction engine is more resistant to weather and mechanical failures. Along with this, the amount of metal used in manufacturing a traction engine is two- to 2.5-fold

less and the labor intensiveness of in-service maintenance is 10-15 percent less because the commutator and brushes have been eliminated.

An electric locomotive with induction traction engines is to begin experimental operation early in the 12th Five-Year Plan. This is the locomotive of the near future. But what does the electric locomotive of the more-distant future look like, and what is being done to create it?

Modern locomotives, not to mention future ones, are inconceivable without automatic control systems. Automated systems were first used on the VL80S, the VL80R, and the Sr 1 supplied to Finland. The main purpose in creating these systems was to make the engineer's job easier. The automatic systems in future electric locomotives must assume the functions of running the train following to a preset program, of controlling the auxiliary engines, and of protecting the electrical equipment and trouble-shooting. This can only be done with computers. Corresponding systems will be stocked by type of electric locomotive and will differ from one another only by the type of program stored in them.

One microcomputer-based automatic control system variant has been developed at the VELNII, manufactured at the NEVZ [Novocherkassk Electric Locomotive Plant] and is now being tested. The system's functional units are individual modules which exchange data through internal communications channels. One important distinguishing feature is the possibility of using a multiplex communications channel, which permits considerable improvement in labor productivity, significantly reduces the possibility of error when installing the control systems, and which also sharply reduces metal expenditures by reducing the number of conductors. This increases the overall reliability of the locomotive's control and monitoring circuits. The system uses modern components designed to operate at ambient temperatures of from +85 to -60 degrees C. The first electric locomotives with microcomputer-based control systems will be on the steel mainlines very soon.

One of the most important tasks resolved when developing the new electric locomotive was to reduce the traction power consumption. This goal will be reached in future electric locomotives in two ways, by widely introducing regenerative braking and by reducing electric power consumption by the train itself. The merits and potential of regeneration are well known. It is appropriate, however, to examine possible ways of saving electricity on the train itself in more detail.

It takes 14-16 percent of the traction power just to drive the fans on the electric locomotives now in series production. This could be cut sharply, inasmuch as the cooling system on electric locomotives is designed to ensure normal temperature conditions in the electrical equipment being cooled as calculated for a one-hour load current and maximum ambient temperature (+40 degrees C). In operation, however, such extreme conditions are observed simultaneously for only brief periods. At the same time, research done at the VELNII has shown that the fan drive power is proportional to one-sixth of the load current when fan operation is regulated as a function of the load on the equipment being cooled.

The VEINII is currently developing a thyristor transformer to drive the fans and a sensitive electronic system for monitoring and controlling them. It is capable of automatically regulating fan operating conditions as a function of the ambient temperature and the load on the equipment being cooled. Such a system will permit an electric energy savings of up to 10 percent in the traction power circuit. Moreover, fan delivery regulation ensures a stabler temperature in the electrical equipment and sharply reduces the amount of dust and snow reaching it, which improves operating reliability and longevity. Regulated fan drive is also to be introduced on the mainline electric locomotives early this five-year plan.

One way of further increasing consist weight is to increase the tractive force of the locomotive, primarily by increasing the number of drive axles. To this end, the VEINII is conducting scientific research to create a new electric locomotive underframe based on an eight-axle section, which will permit having eight, 16 or 24 drive axles in a single traction unit.

As the electrified mainlines advance north and south, questions of protecting the electrical and pneumatic equipment from bad weather become increasingly critical. To this end, the VEINII has developed, in particular, high-efficiency air cleaners. These are vertical, labyrinth louvres which remove all droplet moisture from the air and a centrifugal fan air cleaner that removes more than 50 percent of the dust and 95 percent of the snow from the air. The use of such air cleaners improves the service life of the equipment by stabilizing temperature conditions. This is borne out by data obtained on the North Caucasus Railroad, where NB-418K6 traction engines have been operating under identical conditions with and without the fan air cleaners.

A ventilation system which partially recirculates the air has been developed to protect equipment in the cab of the electric locomotive.

In addition, the VEINII is conducting a broad range of studies on development of maintenance-free components for a number of electric locomotive subassemblies -- traction engines, reed relays and others -- to reduce operating expenditures.

Special mention should be made of unitization. Two systems of electrification have evolved historically and exist today in this country: d.c. and a.c. The mechanical portions of d.c. and a.c. electric locomotives are now unitized. As was noted, the VEINII is developing an automatic control system which can be used on both types of electric locomotives. The development of an electric locomotive with induction traction engines will subsequently permit the development of essentially a single unitized traction drive for both a.c. and d.c. electric locomotives. The only difference will be in the input transformer and in the power transformer on a.c. electric locomotives. As a result, only the auxiliary electric locomotive machinery -- the fan drives and compressors -- will remain ununitized for the indicated current systems. This problem is also being solved. For example, the VEINII has carried out a project to develop an auxiliary machinery drive based on a squirrel-cage induction engine powered by a frequency-controlling thyristor transformer for d.c. electric locomotives. The automatic control system for this drive is the same as that for the a.c. electric locomotives described above. The research

showed as well the possibility and appropriateness of combining the auxiliary machinery thyristor transformer with a static exciter for the regeneration system.

All this permits the conclusion that the electric locomotive of the future will be an automated locomotive with essentially a single design for the d.c. and a.c. network.

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## RAIL SYSTEMS

### NEW PASSENGER TRANSFER POINT ON KIEV METRO

Kiev PRAVDA UKRAINY 6 Dec 86 p 4

[Article by V. Nikipelov: "The Walls of the Metro Are Expanding"]

[Text] In the capital of the Ukraine, metro construction personnel have completed work on the second passenger transfer point between the "Kreshchatik" and "Ploshchad Oktyabrskoy Revolyutsii" stations of the Kiev Subway imeni V. I. Lenin. The point will help to significantly reduce the amount of two-way foot traffic resulting when passengers move between these two major underground stations.

Passengers transferring to the Kurenevsko-Krasnoarmeyskaya Line now go trouble-free down three flights of stairs and find themselves in a spacious 300 meter long pedestrian tunnel gently sloping downward to the platforms of the "Ploshchad Oktyabrskoy Revolyutsii" station. And all three of the old passenger transfer point's escalators have stopped carrying passengers down, and serve only to carry them up to "Kreshchatik" station. It has also become possible to get to the trains on the Svyatoshino-Brovarskaya Line quickly and without delays.

It only takes a few minutes to walk the length of the new passenger transfer point, but the speed of the "trip" did not come easy. Among the hard-working metro construction teams that made the tunnel possible, one of the most outstanding was Vasiliy Nikolayevich Orlov's integrated team from Kievmetrostroy [Kiev Metro Construction Administration] Construction and Assembly Administration No. 6. The brigade was faced with an extremely difficult task. Among the problems were the distance between the surface and the tunnel site, nearby operating tunnels, and overhead water-saturated strata, all of which made it impossible to use mechanized tunnel shields, erector arm tunnel drivers, electric locomotives, and other underground construction equipment. Jack hammers had to be used to crush rock, and a good deal of manual labor went into putting in tubbing and the seals between the tubbing units, into concrete pouring, and a good deal more.

The final stages of the work to take some of the load off the oldest station on the Kiev metro's Svyatoshino-Brovarskaya Line lie ahead. Plans for next year include finishing construction of another auxiliary exit from the

"Gidropark" station, where crowds of city residents on their way to relax on the marvellous beaches of the Dnepr swarm in the summer months.

But the main concern is finishing construction of the "Leninskaya" station, which is being "cut into" the operating mainline between the "Kreshchatik" and "Universitet" stations. This station will also become a passenger transfer point, but for the new (for a total of three) Syretsko-Pecherskaya Line, on which "Kievmetrostroy" construction units will focus their energies after the "Leninskaya" station is finished. The new line will link the northern parts of the Ukrainian capital with southern Darnitsa. Originating at the Vinogradar housing area, it will pass through the city center, cross the new Dnepr bridge, and terminate at two large housing areas, Osokorki and Pozdnyak, both of which are scheduled for construction in the near future.

Construction is already underway on the first phase of the new underground route between "Zolotyie Vorota" and "Osokorki" stations. The total length of the line will be ten kilometers; its three stations--"Zolotyie Vorota," "Dvorets Sporta", and "Mechnikova" will begin operations in 1988 according to plans.

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## RAIL SYSTEMS

### PROGRESS REPORT ON AMUR-YAKUTSK MAINLINE WORK

Moscow GUDOK in Russian 7 Dec 86 p 2

[Article by V. Volkov, chief editor of magazine ZHELEZNAYA DOROGA from the area: "Amur-Yakutsk Mainline: Mainline to the 21st Century"]

[Text]--Yakutsk-Aldan-Neryungri--Research on and surveys of this route had already been done by the late thirties. And in April of last year, the first part of the mainline was finished. The Berkakit--Tommot--Yakutsk railroad line and the 830-kilometer mainline represent the first step toward the underground riches of the Yakut area. A few examples follow. In the southern part of this area, exploration personnel have already discovered a major iron-ore resource for the ferrous metallurgy industry. The deposits of the ore are the third largest in the RSFSR. The Neryungi Coal Mining Complex has started operations and is producing at industrial levels. And a GRES that will provide electric power to the entire region has been constructed.

Adjacent to the AYAM [Amur-Yakutsk Mainline], prospectors discovered the Selegdarskiy apatite deposits, which served as the key factor in a decision to build a high-capacity beneficiation facility that will provide Siberia and the Far East areas with 40 percent of their phosphate fertilizer. In addition, a manganese ore basin has been discovered in the AYAM region.

The steel tracks of the railroad will also help revive the Southern Yakutsk TPK [Territory Industrial Complex], where it will become easier to set up production of modern construction materials in which diopside rock, which was formerly discarded by the "Aldanslyuda" Beneficiation Complex, will be used.

The arrival of the railroad in the central Yakut area will permit large-scale operations to mine power-generating coal to begin with and, in the future, will lead to the creation of a union level fuel and energy complex. Data show, for example, that Kangalassy coal from the first operating cut at the Lenskiy Basin will be cheaper than Neryungri and Ural coal for all coal users from the Neryungri GRES to eastern Siberia and the maritime regions.

This is the near-term outlook for exploiting the natural resources of the Yakut area, where the stimulus to develop these resources at a faster pace will come from the AYAM. In order to maintain the already steady annual growth

of the region's economic potential, special attention will need to be given to the construction of the mainline. This issue, in fact, was a topic of discussion at the 23rd regular session of the USSR Academy of Sciences Scientific Council on Issues of the BAM [Baykal-Amur Mainline].

The route of the new mainline originates at the terminus of the of the Little BAM, or, more precisely, at kilometer 16 of the Berkakit-Ugolnaya spur, crosses the central Yakut region, and runs to the northeast toward Yakutsk over Siberia's large Aldan and Lena rivers. It crosses mountains, permafrost, and icebound tracts.

In these harsh conditions, construction personnel still have to erect more than 700 artificial structures, including 200 bridges, and build settlements with housing and all the amenities at seven stations on the route.

The choice of route for the AYAM will make it possible to lower the cost of cargo shipment from Taymyr, the Yakutsk ASSR, and the northeast part of the country as a whole. According to experts' figures, operation of the Berkakit-Tommot segment of the line alone will yield annual savings of up to 250 million rubles on transportation costs.

At this time, the general contractor--Glavbamstroy [Main BAM Construction Agency]--has all the planning estimates it needs, and more than 5,000 transportation project construction personnel have been stationed along the route. But the USSR Gosplan and the Ministry of Communications, which is ordering the work done, have not adequately financed surveying operations and are allocating less money than prescribed. If this situation continues, most of the actual construction work will not be done until the next Five-Year Plan.

This is why the requisite enthusiasm is absent from the construction sites along the AYAM. So far, no list of the work to be done exists, and construction organizations' production support facilities have not even begun to go up yet.

Yu. Prokopen, first secretary of the Yakutsk CPSU Obkom, stated in a report that: " Ever since the feasibility of the AYAM was shown, the economic development of the region has made huge strides forward. The railroad has become a necessity; it is the only way to provide this huge area with adequate transportation resources. The faster railroad construction progresses, the sooner we will be able to accomplish our major economic programs, the purpose of which is to develop the area serviced by the AYAM."

According to Academician A. Aganbegyan: "We have every reason to believe that the presence of a highway and relatively populated and developed zones along the route, as well as the knowledge gained from building the BAM, will enable us to reduce construction time on the mainline by two to three years."

According to Academician P. Melnikov: "An overall assessment of the route leads to the opinion that construction of the Tommot-Yakutsk segment is a good choice. But we need to cut the construction time back by at least a year."



This is what the experts think. It is obvious why construction on the mainline has to be speeded up. But for some reason, a railroad line which is four times shorter than the BAM and does not have a single tunnel is scheduled to be completed only at the end of two Five-Year Plans. The 300 kilometer Berkakit-Tommot segment will be finished in the 12th Five-Year Plan, while the 450 kilometer Tommot-Yakutsk segment is due for completion by 1995.

The Academy of Sciences Scientific Council, which is chaired by Academician A. Aganbegyan, recommended that construction work on the AYAM proceed at a faster pace and that several problems associated with accomplishing this be solved.

It is now a tradition that new roads are built to match the requirements at the lowest permissible end of the standards spectrum; that is, the road consists of a surface and the simplest kinds of man-made structures. Moreover, operations and logistics are not adequately automated and mechanized.

This is a fundamentally flawed approach. Because of the harsh conditions under which the road will be used, a form of maintenance based on permanently operating crews is necessary. And the only way to facilitate this level of maintenance is to employ automated and mechanized techniques and eliminate manual labor. Yet the plans do not address this at all.

Another problem is the severe housing shortage. Even in the Yakut capital and major cities of the region, the amount of living space per individual is lower than the national average by a factor of three.

Participants in the council's session stressed that the situation in the AYAM area militates in favor of creating permanently inhabited settlements that would build the mainline and exploit the appropriate natural resources. Accomplishing this will be impossible, however, until personnel are secured and guaranteed normal working conditions and recreational opportunities.

Other problems also need to be solved in short order before the economic development of the AYAM area can take place. For example, steps must be taken to ensure that the environment is adequately protected during the AYAM's construction phase. Thus far, however, scientists have not begun looking for the best places to locate agricultural production, nor have they determined what constitutes an appropriate amount of industrial development.

Plans currently call for construction of park areas along the AYAM. These areas would serve to preserve natural zones in a pristine state and protect unique animal and plant species. These plans, however, have not been followed up with any kind of action. And since the railroad is already under construction, we have to wonder if perhaps effective solutions to environmental issues in the AYAM area will not come too late to do any good.

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## RAIL SYSTEMS

### VOROSHILOVGRAD DIESEL LOCOMOTIVE WORKS IMPROVEMENTS

Moscow IZVESTIYA in Russian 4 Dec 86 p 2

[Article by IZVESTIYA staff correspondent N. Lisovenko under the "After Publication by IZVESTIYA" rubric: "How's It Going, Collective?"]

[Text]--Voroshilovgrad--For Voroshilovgrad's locomotive builders, the last three months have probably been the hardest they have faced since they switched from making relatively simple steam to infinitely more complex diesel locomotives thirty years ago. The reason for this is that the production association has been subject to some deserved criticism lately in connection with the withdrawal of the State Seal of Quality from the 2TE10M, the association's main production item. In consequence of this, the collective at the association lost substantial bonus money, and many association managers, including General Director I. Sukhov, were subjected to organizational and party disciplinary measures.

Because it was IZVESTIYA that published the August series of articles on the poor performance of the locomotive builders, we felt a sense of direct involvement in the later rather painful ramifications. Nonetheless, the Voroshilovgradteplovoy [Voroshilovgrad Diesel Locomotive] Association has had the proper attitude. Among the evidence of this was the frankness of the conversation at an association party committee expanded session, where the discussion surrounded the articles and a resolution that emanated from the session.

According to the association party secretary, V. Antipov: "The way it works is that we were supposed to let the paper know what steps we had taken within a month of publication of the articles. But there was no way we were going to be hasty with our report that problems had been remedied. We wanted to make sure we had at least made some progress forward first."

Nowadays, however, it is not stretching it a bit to say they have made progress and are making changes for the better.

Key changes include the reorganization of the association management structure, thus permitting the elimination of a number of unnecessary structural organizations, such as the office of locomotive production management, which had a staff of thirty persons and whose duties

are now being successfully performed by the previously existing production administration. Other changes that have taken place include the reduction of the number of departments and sections at the Manufacturing Design and Engineering Institute from 19 to 13, with 82 engineers leaving the "office" to become more directly involved in production.

During his speech at the party committee session, Chief Engineer P. Shevchenko said: "In light of IZVESTIYA's criticism, we have made fundamental changes in our document "Comprehensive Target Program for Developing the Association in the 12th Five-Year Plan and until the Year 2000." Moreover, we feel that the long-awaited ministry order concerning our developing a new generation of 4000 to 6000 hp locomotives is also a response to the issues brought out in the article."

Now that the association has finally received the approval of the Mintyazhmash [Ministry of Heavy Machinery], it has created the final version of its professional promotion program.

"Voroshilovgradteplovoz" has just signed direct agreements with educational organizations around the country. In accordance with these agreements, engineers will be retrained for such short-supply areas of specialization as robots and automation, flexible production systems, microprocessors, and others. Over the last three months, considerable progress has been made in improving the pay scales for workers, engineers, and staff at the association. The contract brigade system was adopted without a hitch and greater opportunities were created for more flexible relations with parts suppliers, whose activity impacts the pace of scientific and technical progress. Since 1 Jan 87, there have been no ceilings on the incentive bonuses engineers, design engineers, and other technical personnel may be awarded. Previously, the Manufacturing Design and Engineering Institute maximum for bonuses was 50 percent of the official monthly salary. The association now establishes the size of its manpower requirements on its own, within the limits of the budgeted salary fund.

The Institute has changed its previous personnel ratios, according to which there were three category two personnel for each in category one. This is an important step, since moving personnel has enabled the Institute to focus human resources on accelerating scientific and technical progress or expanding production, depending on what associations need. In other words, there have been many changes for the better--changes that the collective is ready to exploit to the fullest, all the while earning the money it needs to further expand production and operate in accordance with the principles of self-reimbursement of expenses and self-financing.

Yet changes of a negative nature were also discussed at the party committee session, although it would probably be more accurate to say that the locomotive builders were more concerned with precisely those issues that were not being dealt with now; that is, after the "Izvestiya" articles. As before, end-of-the-month rush work is a major factor in the association's operations.

A modern locomotive consists of 12,000 parts produced in various branches of industry. 2,500 different plants provide the "Voroshilovgrad" Association with

metal and other materials and components. Naturally, this level of cooperative effort requires that all participants in it work according to schedule. But a simple look at the delivery schedule is sufficient to show that if the diesel engine (without which the assembly lines stand idle) itself arrives only on the 24th, the only way to get the locomotive assembled by the end of the month will be to deprive workers of sleep and rest.

Unfortunately, sloppy planning culminating in end-of-the-month rush work starts in the upper echelons of management. This has always been the case and still is. Here is a recent example. While the association's production plan for last year did not include enough metal for running a two-week schedule, this year there is not enough rolled stock for a cycle of two months. (Annually, the association uses 126 million tons of metal, while the Ministry of Heavy Machinery promises delivery of only 103.3 million tons.) So now what--more intense rush jobs? Last year, "Voroshilovgradteplovoy" personnel engaged in prodigies of resourcefulness, using every available (and a few that should not have been unavailable) means to secure the needed rolled stock from metal manufacturers. But how can production be planned without the necessary materials? A possible answer to this question might be found in the still valid Mintyazhmash principle that planning proceeds from past performance. In accordance with this principle, the production schedule for the next year will retain the inscrutable line "other production." And personnel end up having to produce two million rubles worth of this "other production" for which resources have not been provided.

Plans to update 2TE116 diesel locomotives are suffering a similar fate. As we noted in our articles, strange things have befallen this piece of machinery. Developed dozens of years ago, hundreds of them are in service at the Ministry of Railways, yet there is still no interdepartmental commission contract to begin mass production of them. The locomotive still has the legal status of a pilot model; it therefore cannot be certified, and all for the single reason that the diesel engine is not of sufficiently high quality.

As a result, the Mintyazhmash has not been providing the association with A9GD diesel generators from Kolomenskiy to update this locomotive for a considerable period of time. And, no matter how much they want to, the Voroshilovgrad locomotive builders do not have the resources to handle the level of production (5-7 million rubles per year) of this item called for in the locomotive construction plan.

At the party committee session, Manufacturing Design and Engineering Institute deputy chief engineer A. Gibalov said: "It seems to me that the team presenting the matter should have explained in more depth that the diesel engine was the basic problem."

Others who spoke that day emphasized this point. And we will be returning to the issue of the diesel engine again.

Several of the speeches at the party committee session expressed the well-founded opinion that the Mintyazhmash had never dealt in a comprehensive way with issues pertaining to development of the locomotive building industry.



Since the locomotive building industry does not have a coordinating body which does what the Mintyazhmash does not, production supply problems sometimes determine the course of events. To illustrate this, one need only note that, unlike other segments of the machine building industry, locomotive builders have never been given a set of locomotive building standards. Because of this, it takes decades to design a new locomotive. Should we allow ourselves to become reconciled to this state of affairs at a time when we are seeking new ways to accelerate progress? Another factor holding up the process of getting a first-class locomotive on the tracks is the absence of an experimental center at the "Voroshilovgradteplovoy" Association. To compound the problem, the association does not even have so essential an item as a turning ring for testing its machines.

The theme of the important discussion can be best summed up by the words of first locomotive assembly shop team leader P. Kurenkov, who said: "Each of us should do his job honestly. And that goes for our ministry too."

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## MARITIME AND RIVER FLEETS

### ADMIRAL NAKHIMOV DISASTER PROMPTS MARITIME FLEET ACTIONS

Moscow VODNYI TRANSPORT in Russian 13 Dec 86 p 3

[Article: "In the Collegium of the USSR Ministry of the Maritime Fleet"]

[Text] The regular expanded session of the Ministry of the Maritime Fleet collegium examined the reasons for the Admiral Nakhimov steamship accident and measures to improve navigation safety radically. It was pointed out that the reasons for the collision of the Black Sea Shipping Company vessels -- the Admiral Nakhimov steamship and the Petr Vasev motor vessel -- were the very gross violations of the requirements in the norm documents that regulate navigation safety and the criminally negligent attitude of both vessel captains toward the carrying out of their official duties.

Both captains have been arrested and are under investigation.

Serious deficiencies in the operation of the Black Sea Shipping Company and the ministry's staff in insuring navigation safety have been revealed as a result of the inquiry. S. Lukyanchenko, the former chief of the shipping company, let navigation safety matters escape from under his personal control, having transferred its trust to his deputies. A. Tretyak, the former deputy chief of the shipping company for navigation safety, and V. Lyutyy, the chief of the navigation safety service, did not insure the ship-handling crew's strict observance of the provisions in the "Service Regulations for Ministry of the Maritime Fleet Vessels", the "Manual for Organizing Navigation Service" and the "International Rules for Preventing Collisions of Vessels at Sea"; and relaxed their exactingness on the fleet's command personnel and shipping company's staff for the insurance of navigation safety.

Many of the deficiencies in insuring the fleet's accident-free operation are explained by serious derelictions in the selection, assignment and training of the command personnel, including the captains and first mates. Yu. Datsyuk, deputy personnel chief of the shipping company, and V. Sidorov, chief of the passenger fleet administration, did not insure the required order in bringing passenger vessel crews to full strength and in considering the changes in their composition, especially during coastal navigation.

In the shipping company, systematic monitoring of the state of affairs in the vessels' crews was not organized and formalism was tolerated in the work with the personnel reserve during promotion. In this regard, the opinion of the work collective was not always taken into consideration. As a result of this serious blunders and errors occurred and instances of the advancement of persons, who did not possess the necessary business, political and moral qualities, to senior command positions were tolerated.

The main personnel administration (the chief is N. Kuznetsov) has not reorganized its work and did not achieve a radical improvement in its work with personnel.

The Moreplavaniye All-Union Association, navigation services of the shipping companies, port captains, port supervision inspectorates, captain mentors, and engineer mentors did not perform persistent work in preventing accidents in the fleet and often displayed placidity, complacency and liberalism toward violations of work and production discipline and the rules and instructions for insuring navigation safety.

The commissions, which carry out the complex inspections of steamship companies on matters of navigation safety, did not make any deep analysis of the state of affairs and demonstrated a lack of principles in their conclusions and proposals. Despite the fact that increased requirements are being placed on insuring the navigation safety of passenger vessels, the status of this work has not been checked once during the past three years on a single passenger vessel.

A. Goldobenko, a former deputy minister, and V. Oshcherin, Morpasflot [Maritime Passenger Fleet] All-Union Association deputy, did not take all steps to insure from an organizational viewpoint the transportation of passengers in accordance with existing requirements and practically did not perform any work in the unit for strengthening discipline on passenger vessels.

S. Lukyanchenko, the chief of the Black Sea Shipping Company, was expelled from the party and removed from his position because of his unsatisfactory work in directing the shipping company and because of his failure to take navigation safety steps. A. Goldobenko, USSR deputy minister of the maritime fleet, and B. Maynagashev, collegium member and chairman of the Moreplavaniye All-Union Association, were dismissed from the positions that they held and were sternly punished in a party manner; B. Yunitsyn, USSR deputy minister of the maritime fleet had party proceedings instituted against him.

The Ministry of the Maritime Fleet Collegium had not reorganized its work in accordance with the requirements of the April 1985 CPSU Central Committee Plenum and the decisions of the 27th party congress; the ministry directors had not taken decisive measures to insure navigation safety and did not display a high level of principles in solving personnel matters and in increasing the responsibility of the fleet's command staff for accident-free operations.

The VODNYI TRANSPORT newspaper and the basin press illuminated for a long time the state of affairs in insuring the safe sailing of vessels and transport of passengers with insufficient objectivity.

An extensive collegium decision has been adopted on the question being discussed. It provides for concrete measures to radically improve navigation safety, discipline and organization in maritime transport operations and to improve the personal responsibility of directors at all ranks for the putting of the necessary order into the organization of the service on vessels. Very strict observance of the requirements of the international, state and branch norm and technical documents, which are in effect for regulating navigation safety and the protection of human life at sea, was emphasized.

It was determined that the captains, who had compromised themselves in their personal conduct and tolerated a callous attitude or carelessness in fulfilling their official duties regarding the insuring of navigation safety, could no longer be trusted with occupying this position.

Deputy Minister B. Yunitsyn was given a stern reprimand for his failure to take steps to reduce accidents in the fleet and for his poor monitoring of the work of the Moreplavaniye All-Union Association.

Deputy Minister B. Trunov was reprimanded for his insufficient monitoring of the work of the ministry's and shipping companies' personnel services.

N. Kuznetsov, the chief of the Personnel Main Administration, was sternly reprimanded for the serious derelictions in his work regarding the selection, assignment and training of personnel and for his insufficient exactingness toward personnel services.

G. Shchegolev, deputy chief of the Personnel Main Administration and a department chief, was sternly reprimanded for his insufficient exactingness and poor monitoring of the selection, assignment and training of captain cadres.

G. Leontyev, deputy chairman of the Moreplavaniye All-Union Association, was sternly reprimanded for his shortcomings in organizing the emergency rescue service in the Ministry of the Maritime Fleet.

V. Rudakov, chief of the port supervision inspectorate in the Moreplavaniye All-Union Association, was reprimanded for his shortcomings in organizing the work of the port supervision inspectorate in matters concerned with the prevention of accidents in the fleet and with the readiness of crews to struggle for the survivability of vessels.

A. Sukhov, chief of the navigation inspectorate, was sternly reprimanded for the high accident rate in the maritime fleet and the poor work to prevent them.

A. Bystrov, senior inspector for the safety of the Southern Basin, was dismissed from the position that he held for lack of the required monitoring of the work of the Black Sea Shipping Company in insuring navigation safety.

V. Oshcherin, deputy chairman of the Morpasflot All-Union Association, was sternly reprimanded because of his serious deficiencies in organizing passenger



transportation and his poor monitoring of the work of the steamship companies to improve passenger service on vessels and in ports.

It was decided to hold a meeting of the aktiv in all shipping companies on the agenda "On Measures To Improve Work With Cadre and Radically Increase Navigation Safety in Light of the Decisions of the CPSU Central Committee" in which the deputy ministers and collegium members would participate.

The editorial boards of VODNYI TRANSPORT, the MORSKOY FLOT and VYMPEL magazines and basin newspapers must reinforce their attention on the publication of articles that deal with the struggle against accidents in the fleet, reveal their causes more sharply, and publicize more widely positive navigation safety experiences and the role of the human factor in insuring it. They must not lower the level of sound and sharp criticism of the deficiencies and derelictions in work, especially on matters pertaining to navigation safety, labor and safety equipment protection and labor and production discipline.

V. Davydov, first deputy chief of the CPSU Central Committee Transport and Communications Department, CPSU Central Committee Responsible Workers, the USSR Council of Ministers, and other departments participated in the work of the collegium.

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